



# IKEA Climate Report FY23



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## About this report

This report summarises our performance during FY23 compared to the IKEA climate commitments, which are an integrated part of the [IKEA sustainability strategy, People & Planet Positive](#). This report covers the entire value chain and franchise system and provides an update on activities and the ongoing work to measure progress. The IKEA Climate Report is issued by [Inter IKEA Group](#).<sup>1</sup>

The reporting period follows the financial year 2023 (FY23), which runs from 1 September 2022 to 31 August 2023. Percentages in this report may not total 100% due to rounding differences. Please note that we review and update historical data for accuracy on an annual basis. These changes are due to updates to external reference data, improved calculation methodologies and data quality.

The IKEA business is defined as the business activities performed by all companies operating within the IKEA franchise system. "We" in this report refers to the IKEA business. The IKEA value chain encompasses more than the IKEA business and includes sourcing and extracting raw materials, manufacturing, transporting of products, retail activities in stores, customer travel to stores, product use in customers' homes and product end-of-life.

To ensure the long-term growth and development of the IKEA business, we use a [franchise system](#). This provides financial stability while allowing franchisees to challenge, test and explore new markets and ideas. Together, we continue to develop the IKEA brand.

[Read the complete IKEA Sustainability Report FY23.](#)

<sup>1</sup> Inter IKEA Group consists of Inter IKEA Holding B.V. and all its subsidiaries. An overview of all Inter IKEA Holding subsidiaries can be found [here](#).

# Making progress and strengthening our climate goals

**2023 was the warmest year on record, and current forecasts predict that we are heading towards a global warming of about 2.7°C.<sup>1</sup> Despite the clear signs and evidence pointing to the world being off course in addressing global warming, it's more important than ever to act with urgency and stay committed to the Paris Agreement and align with the 1.5°C limit.**

That's why we have strengthened our strategic climate goals and actions to align with the 1.5°C trajectory – moving from a goal of an absolute reduction of greenhouse gas (GHG) emissions from the total IKEA value chain of at least 15% by FY30 to at least 50% (page 4). Our overall goal is to reach net-zero emissions without using any carbon offsets by FY50 at the latest. These goals are aligned with the Net-Zero Standard by Science Based Target initiative (SBTi) and are now pending their approval.

In FY23, the absolute reduction of greenhouse gas emissions from the entire IKEA value chain was 12%, compared to FY22, and 22% compared to the baseline year FY16. The reduction resulted from a continued increase of renewable electricity use in both retail and production units, energy efficiency improvements in our lighting range, and lower production volumes. With

Türkiye reaching 100% renewable electricity during the year, there are now 25 IKEA retail markets that only use renewable electricity (page 26).

For materials – our largest climate footprint – we have clear plans in place for each material area and, in FY23, set a new goal to halve GHG emissions from materials by FY30 compared to FY16. A milestone that will impact our future footprint is the introduction of bio-based glue in one of our board factories. As glue in board materials represents 5% of the total climate footprint within the IKEA value chain, this movement will have a significant impact on our climate footprint (page 12). We also launched our first ceramic product using internal factory waste – the tableware SILVERSIDA.

It's important for us to lead with facts and to be able to substantiate the goals we set and understand what it takes to reach them. This safeguards credibility and accountability. Effects from COVID-19, the war in Ukraine and impacts from high inflation made the work to set our new climate goals a bit harder than we first thought. We now have clear plans in place and will share these in more detail in FY24. Hopefully, we can inspire others to take action aligned with 1.5°C.

As a business, we have the possibility and the responsibility to reduce the GHG emissions of our own value chain and contribute with further reductions in society. Our home solar offer, SOLSTRÅLE is one

example of how we enable our customers to generate renewable energy at home (page 9).

Millions of people are already affected by climate change. In the six years from 2016 to 2021, UNICEF reported that 43.1 million children were displaced due to weather-related disasters.<sup>2</sup> From a health perspective, 2.4 billion people are currently breathing dangerous levels of polluted air, with the combustion of fossil fuels being a large contributor.<sup>3</sup> Looking ahead to 2050, it's projected that 1.2 billion people will be displaced as a result of climate change.<sup>4</sup> These are simply staggering figures. For a business with a vision to create a better everyday life for the many people, we must do what we can to limit climate change.

An important movement in society, if we are to limit climate change and contribute to clean air, is the complete phase-out of fossil fuels – abated and unabated<sup>5</sup> – and any connected subsidies. We must address the root causes of climate change. Therefore, we support the Fossil to Clean campaign by We Mean Business and are engaging in many other initiatives. Only by striving towards 100% renewable energy can we limit global warming. There are no shortcuts.

We know that climate change, nature loss and inequality are interdependent. Protecting and restoring nature is a vital part of our climate agenda since climate change is one of the main drivers of nature loss. Deforestation

is also one of the main contributors to climate change, as nature is an important carbon sink and securing its resilience is of utmost importance. We will be working together with partners and stakeholders to halt and reverse nature loss. To further support change, the IKEA business was present at COP28, joining in the call to phase out fossil fuels, halt deforestation and address the root causes of air pollution.

We are immensely proud of all the hard work our co-workers, suppliers and partners do across the IKEA value chain to make the changes we want to see happen, step by step. It gives us the optimism that it can be done! Together, we will take the necessary actions needed to reach our new ambitious goals and contribute to limiting global warming to 1.5°C.



**Jon Abrahamsson Ring**  
Chief Executive Officer,  
Inter IKEA Group



**Pär Stenmark**  
Chief Sustainability Officer,  
Inter IKEA Group

<sup>1</sup> Climate Action Tracker, "No change to warming as fossil fuel endgame brings focus onto false solutions" 2023.

<sup>2</sup> UNICEF, "Weather-related disasters led to 43.1 million displacements of children over six years" 2023.

<sup>3</sup> WHO, "Health topics: Air pollution" 2019.

<sup>4</sup> Zurich Insurance Group, "There could be 1.2 billion climate refugees by 2050. Here's what you need to know" 2022.

<sup>5</sup> IPCC definition of "abated and unabated".



# Our climate agenda

**During FY23, we aligned our strategic climate goals with the 1.5°C trajectory and the Net-Zero Standard by Science Based Targets initiative (SBTi). We submitted our goals to SBTi mid-November 2023 and validation is currently pending.**

Our main priority is **drastically reducing greenhouse gas emissions** across the IKEA value chain. Any remaining emissions will be neutralised – reaching net-zero emissions by FY50 at the latest – **by removing and storing carbon** from the atmosphere through better forest and agricultural management practices within the IKEA value chain. Additionally, we will go beyond net zero and **go beyond IKEA** by contributing to additional reductions in society.

## 1 Drastically reducing GHG emissions across the IKEA value chain, in absolute terms

The overall goal is, by FY30, to reduce the absolute GHG emissions from the IKEA value chain by at least 50% compared to FY16 (previous goal was a 15% reduction). By FY50 at the latest, we will reduce the absolute GHG emissions from the IKEA value chain by at least 90% compared to FY16.

As a result of our new net-zero goals, we have either updated or set new goals for most parts of our value chain.<sup>1</sup> For materials, we have set the goal to at least halve our emissions by FY30 compared to FY16 baseline (page 11). For food ingredients, we have updated our FY30 goal from -25% to -50% emissions reduction compared to FY16 (page 16). For product use at home, we have set our FY30 goal to -70% emissions reduction compared to FY16 (page 29). We have also set a FY30 goal for reduced emissions from product end-of-life by 30% compared to FY16 (page 32).

## 2 Removing and storing carbon from the atmosphere through forestry, agriculture and products within our value chain

Storing carbon in trees and agricultural crops used for materials, food, and fuels removes CO<sub>2</sub> from the atmosphere. If the land is also responsibly managed, it has the potential to reduce climate impact. In contrast to carbon offsets, the removals and storage occur within the

IKEA value chain and are part of how we responsibly source materials for the IKEA range.

A strategic goal will be set once the Land Sector and Removals Guidance by GHG Protocol is finalised, which is expected to be in the summer of 2024. This accounting guidance is the final piece since the establishment of the Forestry, Agriculture and Land (FLAG) target setting standard by SBTi established in September 2022. Even though a goal has yet to be set, we're pursuing actions that we know will make a positive contribution (page 8).

## 3 Going beyond IKEA

We will contribute to additional reductions in society by taking an extended responsibility for the climate footprint of our customers, suppliers and in our sourcing areas – not just the part which we can account for in the IKEA climate footprint. A strategic goal for this will be set once the guidance for “removing and storing carbon” is ready and when the framework for going beyond has been developed by SBTi. We are already taking actions that we know will have a positive contribution, even though a goal has not yet been set.

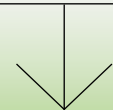
We firmly believe that we need to address the root causes of our climate footprint within our own value chain or in connection to our customers, suppliers, and sourcing areas. We will not use carbon offsets to achieve our ambition to reach net-zero emissions.

### Reducing the IKEA climate footprint in line with 1.5°C

- 1 *Drastically reducing GHG emissions across the IKEA value chain, in absolute terms*
- 2 *Removing and storing carbon from the atmosphere through forestry, agriculture and products within our value chain*

### Contributing to additional reductions in society<sup>2</sup>

- 3 *Going beyond IKEA*



### Reducing more emissions than the IKEA value chain emits

<sup>1</sup> Excluding production, product transport, co-worker commuting and business travel.

<sup>2</sup> An effect that's in addition to what's required to reduce the IKEA value chain emissions to be aligned with the 1.5°C target and will never act as any discount or offset to reach the GHG emission reduction goal.

# FY23 summary of progress

## 1. Drastically reducing GHG emissions across the IKEA value chain, in absolute terms

In FY23, the IKEA climate footprint is estimated to be 24.1 million tonnes CO<sub>2</sub> eq in absolute terms, which is a decrease of 12% compared to FY22 and 22% compared to baseline FY16. The reduction in FY23 was attributed to the continued increase in renewable electricity use at both retail and production units, energy efficiency improvements in our lighting range and lower production volumes. Due to an overstock situation at the beginning of the year, our produced volume declined in FY23. We came into FY23 with challenges that were lagging from an unpredictable business climate, supply chain constraints and high inflationary pressure from previous years.

In IKEA **retail & other operations**, the share of renewable energy increased from 63% in FY22 to 69% in FY23, with the share of renewable electricity increasing from 75% to 77%.

In **production**, the renewable electricity share increased from 63% in FY22 to 71% in FY23, while the renewable energy share remained flat at 48%. The flat trend in renewable energy is mainly due to a significant decrease in biofuel use related to the close-down of our production facilities in Russia and an increase in on-site coal consumption at some of our suppliers. A total of 142 additional factories or suppliers achieved 100% renewable electricity in FY23, bringing the total to 408, which constitutes 37% of our direct suppliers.<sup>1</sup>

For **product transport**, the share of alternative fuels, such as biogas and electricity, increased from 6% to 10%. For logistics service units, such as warehouses, the renewable electricity share increased from 86% to 90%.

**Product use at home** represents the second-largest portion of the IKEA climate footprint, and since the baseline FY16, greenhouse gas emissions have more than halved. Compared to FY22, we saw an emissions reduction of 13% in FY23. The reduction is attributed to a 6% improvement in energy efficiency (lumen per Watt) of the lighting range, as well as a 3% reduction in sales quantity (pieces). External factors such as improvements in the renewable energy share for electricity grids in our retail markets also contributed to 4% of the emissions reduction.

**Materials** used in IKEA products account for the largest part of our climate footprint. The footprint of materials (including the share of recycled or renewable materials) is mainly based on estimations. While lower production volumes in FY23 did contribute partly to the decline in the material footprint, we also had several material developments during the year which are highlighted in [pages 11 to 15](#).

<sup>1</sup> Includes home furnishing, components and media print suppliers but excludes food suppliers.

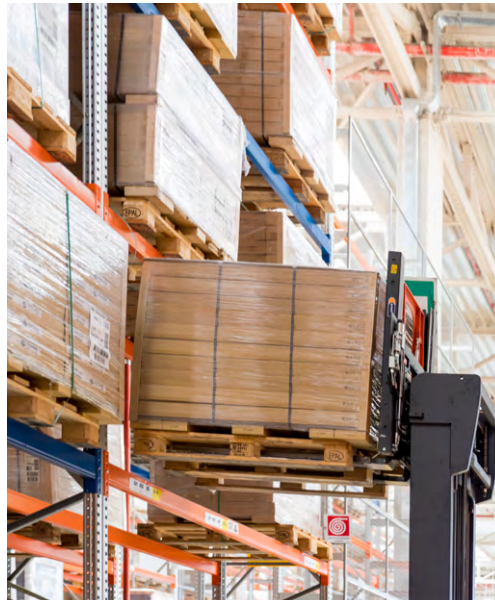


While our absolute footprint was down in FY23 by 12%, our relative footprint grew by 9% upstream (produced volume) and 2% downstream (sold volume), compared with FY22. Our upstream supply chain includes materials, food ingredients, production, product transport and logistics services and downstream includes IKEA retail, co-worker commuting and business travel, customer travel and home deliveries, product use at home and product end-of-life.

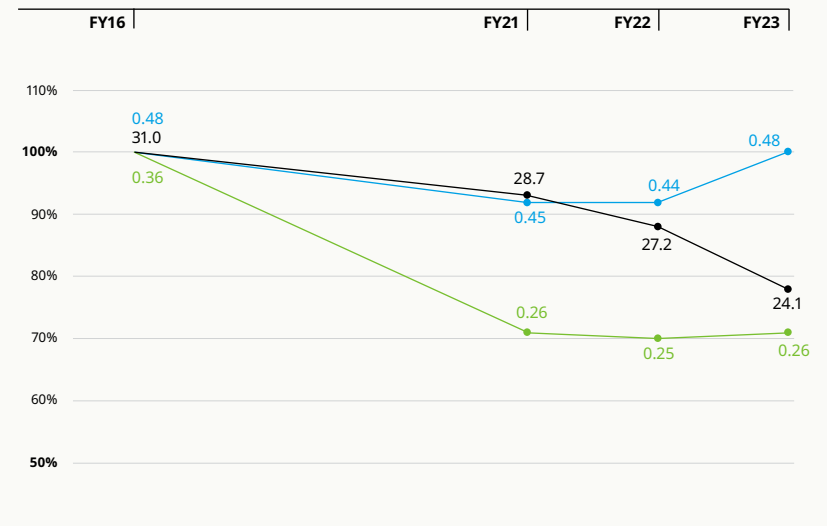
Our calculation methodology for production uses a spend-based allocation (share of EUR purchased) for supplier factory emissions, which determines the IKEA share of GHG emissions, so the increase of relative emissions in FY23 can be largely attributed to the effects of inflation. That is, more GHG emissions were allocated to the IKEA business even if our actual production at supplier factories was comparable to previous years.

In addition, the climate footprint of material, the largest portion of our footprint, is largely based on estimations which today do not account for the various positive movements we've made in the business such as the introduction of more recycled and renewable materials. As a result of the digitalisation of data collection, we aim to provide more accurate data in the FY24 report.

As a part of our net-zero goal setting, we launched a comprehensive business consequence analysis to identify the actions needed to halve emissions by FY30 compared to our FY16 baseline. These action plans will provide the foundation for our continued reduction of overall emissions and should reverse the increase in relative emissions we saw in FY23.



The IKEA climate footprint in both absolute and relative terms



- Climate footprint of the total IKEA value chain both upstream and downstream (million tonnes CO<sub>2</sub> eq)
- Climate footprint (upstream) per m<sup>3</sup> produced volume incl. food, indexed vs. baseline FY16 (million tonnes CO<sub>2</sub> eq per million produced m<sup>3</sup>)
- Climate footprint (downstream) per sold volume, indexed vs. baseline FY16 (million tonnes CO<sub>2</sub> eq per million sold volume m<sup>3</sup>)

## FY23 key activities across the IKEA value chain to drastically reduce GHG emissions



### → Halving emissions from product use at home

Emissions from product use at home includes the electricity consumption of lighting, home electronics and appliances and the burning of candles. Compared to the FY16 baseline, we have managed to more than halve these emissions. This means that an estimated 4 million tonnes CO<sub>2</sub> eq less will be emitted over the lifespan of our products sold in FY23 compared to FY16. The main drivers of this reduction include a significant improvement in the energy efficiency of products over the years, as well as an increase in renewable electricity in electricity grids in the markets where our customers live and use our products. This is considered when estimating the climate footprint of product use at home ([page 40](#)).

### → Increasing the renewable electricity share in production

The share of renewable electricity for production increased from 63% in FY22 to 71% in FY23. Significant increases were achieved in China, India and Vietnam. These movements were supported by our renewable electricity programme for suppliers, which is now active in 13 supplier markets.

### → Moving towards 100% renewable energy in IKEA retail & other operations

The share of renewable energy consumed in IKEA retail & other operations, which includes our stores and other customer meeting points, increased from 63% in FY22 to 69% in FY23. This was mainly driven by an increase in renewable heating in Germany (+37 percentage points), followed by Lithuania (+18 percentage points) and the Czech Republic (+16 percentage points), which increased the overall share of renewable heating from 22% in FY22 to 32% in FY23. At the same time, the share of renewable electricity increased marginally from 75% in FY22 to 77% in FY23.

### → Introducing bio-based glue into the IKEA range

The Kazlų Rūda factory in Lithuania became the first IKEA Industry factory to use bio-based glue. This is an important first step in the work to reduce the climate footprint from glue by 30% by FY30. As glue in board materials represents 5% of the total climate footprint within the IKEA value chain, such a decrease will have a significant impact on our climate footprint.

### → Towards the phase-out of coal- and fossil oil-based fuels in production

After a decrease from 11% in FY16 to 7% in FY22 (in terms of kWh), the share of coal- and fossil oil-based fuels increased to 9% in FY23. Our GHG calculation methodology uses a spend-based allocation (share of EUR purchased) for supplier factory emissions, which determines the IKEA share of GHG emissions. In FY23, there was a greater allocation of coal use to the IKEA business – an increase which is largely attributable to the effects of inflation.

Our remaining suppliers who use coal on-site have committed roadmaps and deployment plans to secure the complete substitution of coal with renewable energy.



## 2. Removing and storing carbon from the atmosphere through forestry, agriculture, and products within the IKEA value chain



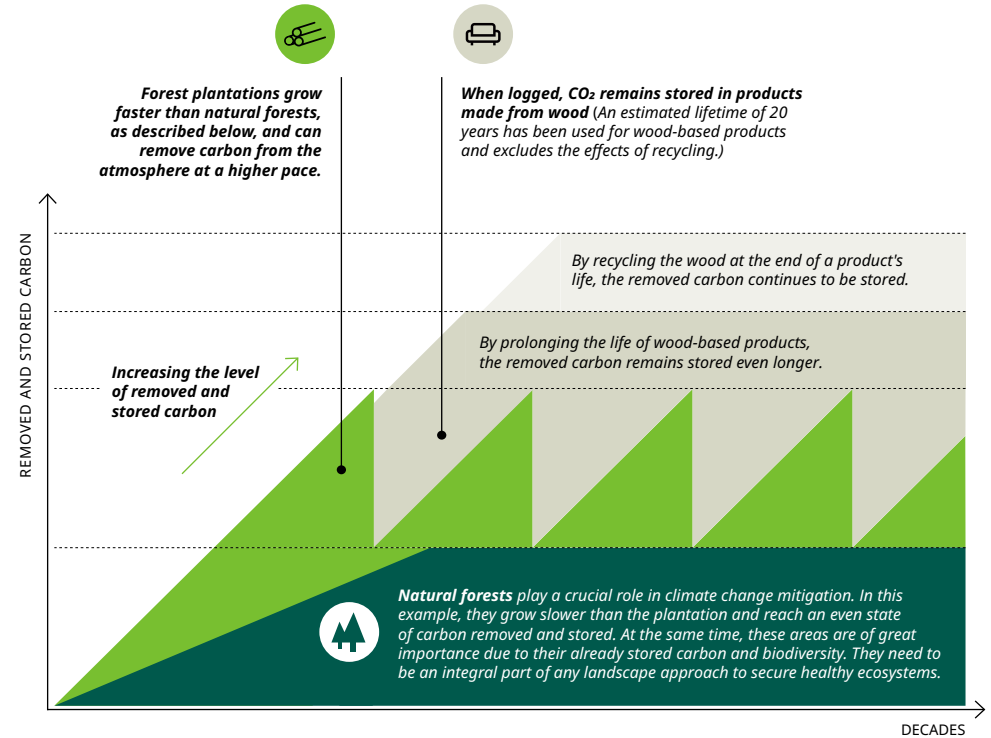
During FY23, we continued our contribution to the work of the GHG Protocol in developing their [Land Sector and Removals Guidance](#). The guidance will secure principles on how to account for and report GHG emissions and carbon removals and storage connected to land use and products made with renewable materials. Throughout the project, the IKEA business has been part of the Advisory Committee and Technical Working Groups. During FY23, we also contributed by conducting pilots in the IKEA supply chain during the public consultation and piloting phases.

The guidance provides the accounting principles for the target setting standard by the Science Based Targets initiative (SBTi) on land-based emissions and removals from Forest, Land and Agriculture (FLAG) – work that we have also contributed to.

The guidance is now expected to be completed during the summer of 2024. Once the guidance

has been completed, we will set a strategic goal for removing and storing carbon through forestry, agriculture and products as part of our climate agenda. That goal will define the ambition level for carbon removals and storage by FY30 and how we will neutralise any remaining GHG emissions after reducing them by at least 90% by FY50 at the latest.

While our goal is pending, we're still taking action to improve carbon removals and storage. One such initiative is the EUR 100 million financing of a carbon removal and storage programme. As a part of this programme, in 2022 we started a five-year engagement to work with smallholder farmers in Vietnam to prolong acacia rotation. The benefits for the climate and income for the farmers in this project are expected to be significant.



Above is a simplified model illustrating an example of removing and storing carbon through the establishment of fast-growing tree plantations plus restoration of natural forests on degraded land, including the effect of prolonging the carbon storage through wood-based products and recycling. Trees from responsibly managed forest plantations absorb substantial amounts of carbon dioxide (CO<sub>2</sub>) from the atmosphere. When trees are made into wood-based products, they act as temporary carbon storage. This storage effect can be extended through reuse, refurbishment, remanufacturing and recycling of the material at end-of-life. In resilient landscapes, the contribution of responsibly managed forest plantations towards climate change mitigation, and the many contributions of natural forests, in terms of biodiversity or soil protection, for example, have to be considered together. A holistic view, where we balance forest growth, harvest, carbon storage in land and products and other environmental services, such as biodiversity, is critical.



### 3. Going beyond IKEA by taking an extended responsibility for customers and suppliers

In FY21, our methodology to measure *going beyond IKEA* was finalised. However, it remained a challenge to measure and follow up across the IKEA business in a consistent way. Addressing this is a prerequisite to setting a strategic goal. However, it's important to note that while no strategic goal has been set, we're already actively working with actions that are part of the *going beyond IKEA* agenda.

To secure that the actions are part of the IKEA business transformation, all actions and activities for *going beyond IKEA* are connected to the IKEA value chain. This means that they are either part of the IKEA range, supplier base or sourcing area. The impact of *going beyond IKEA* initiatives will not contribute towards our emission reduction goals in our net-zero commitment and therefore should not be viewed as an offset.

Therefore, any contribution must be within one of the following three areas:

#### Resource use at home

Solutions enabling the generation of renewable energy like, for example, the SOLSTRÅLE home solar offer.<sup>1</sup> It also includes solutions to improve the efficiency of energy- and water-consuming

products when used as intended. One example is the recently launched ÅBÄCKEN water nozzle, which can enable customers to save up to 95% of water used in taps at home.<sup>2</sup>

#### Renewable energy for suppliers

Actions by the IKEA business to convert our supplier partners to 100% renewable energy for their entire factory or operations, not just the IKEA share of their business.

#### Improving forestry and agriculture in IKEA sourcing areas

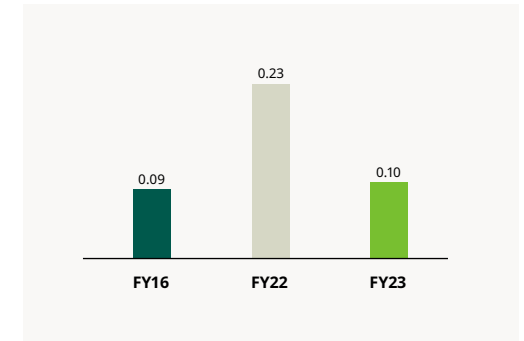
Actions by the IKEA business to improve forestry or agricultural practices for the total surroundings/ landscape where we source raw materials.

The possibility of following up on this impact will be enabled through the Land Sector and Removals Guidance by GHG Protocol. To avoid overestimating the contribution, we're only accounting for the contribution occurring each year instead of adding up the total GHG emissions avoided since baseline FY16.

This year, we're only disclosing the effect of resource use at home through the SOLSTRÅLE home solar offer. While most parts of the digitalisation for climate footprint reporting are

now ready, *going beyond IKEA* remains to be done. The *going beyond IKEA* contribution from suppliers will be followed up on in the FY24 Climate Report.

In FY23, the SOLSTRÅLE home solar offer was available in 11 IKEA markets.<sup>1</sup> The total avoided emissions through the renewable electricity it generated was approximately 0.10 million tonnes CO<sub>2</sub> eq (-55% compared to FY22). This is calculated as the effect of the electricity in the national grid, which the renewable electricity from home solar replaces. The average effect is calculated for the lifetime of the home solar panels, similar to how the climate footprint for product use at home is calculated for lighting and appliances.



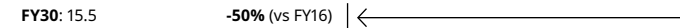
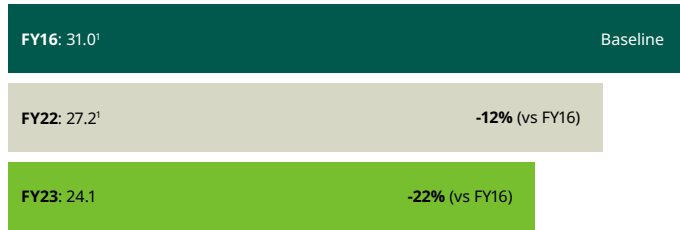
Millions of tonnes CO<sub>2</sub> eq avoided through SOLSTRÅLE home solar.

<sup>1</sup> In FY23, the SOLSTRÅLE home solar offer was available in the following markets: Australia, Belgium, France, Germany, Italy, The Netherlands, Poland, Portugal, Spain, Sweden and Switzerland.

<sup>2</sup> This excludes lighting, appliances, taps, showers and circular services or solutions since they are already accounted for as GHG emissions in the IKEA climate footprint. Any improvement of these is accounted for in the IKEA climate footprint (drastically reducing GHG emissions) instead of *going beyond IKEA*.

# IKEA climate footprint

## Performance vs. baseline FY16 (million tonnes CO<sub>2</sub> eq)



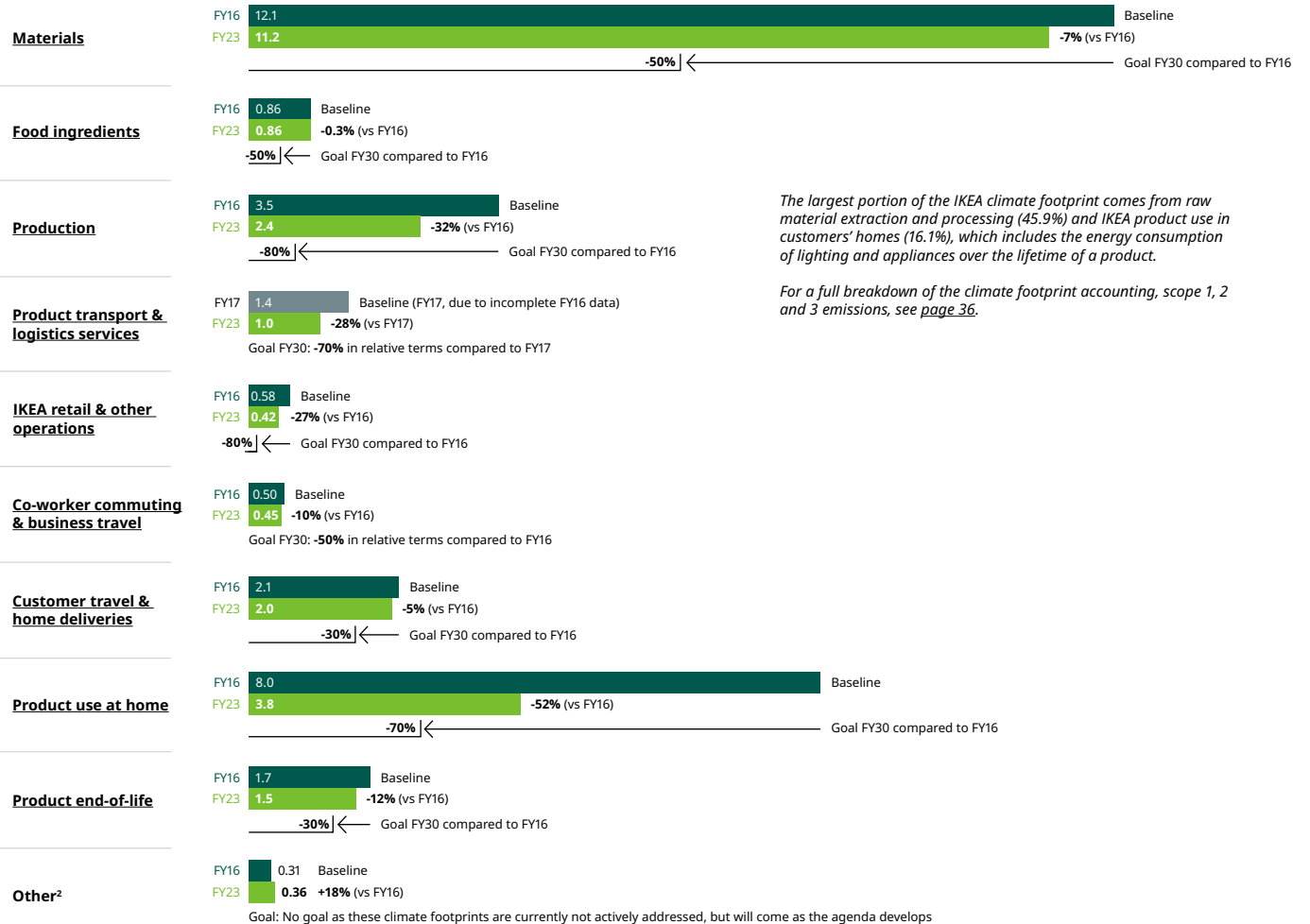
### Goal FY30

Reduce by at least 50% in absolute terms compared to baseline FY16. Our previous goal for FY30 was a 15% reduction. Our new goals were submitted to SBTi in mid-November 2023 and are currently pending approval.

In FY23, the total IKEA climate footprint decreased by 3.2 million tonnes of CO<sub>2</sub> eq in absolute terms compared to FY22 – a reduction of 12%. The reduction in FY23 was attributed to the continued increase in renewable electricity use at both retail and production units, energy efficiency improvements in our lighting range and lower production volumes.

## Climate footprint at each stage of the IKEA value chain (million tonnes CO<sub>2</sub> eq)

FY16 FY23 ← Goal FY30 compared to baseline (FY16)



*The largest portion of the IKEA climate footprint comes from raw material extraction and processing (45.9%) and IKEA product use in customers' homes (16.1%), which includes the energy consumption of lighting and appliances over the lifetime of a product.*

*For a full breakdown of the climate footprint accounting, scope 1, 2 and 3 emissions, see [page 36](#).*

<sup>1</sup> Historical figures are revised only if data quality or calculation methodologies improve.

<sup>2</sup> Includes the climate footprints of capital goods, materials connected to retail equipment and co-worker clothing, and waste generated in IKEA operations.

# Materials

(46.6% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>

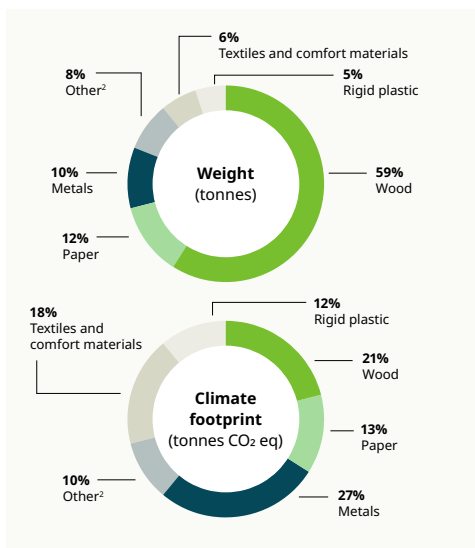


## Goal FY30 (updated)

By FY30, reduce the absolute GHG emissions from materials by at least 50% compared to baseline FY16.

## Sub-goal

By FY30, aim to only use recycled or renewable materials.



Share of material weight (% tonnes) vs. climate footprint (% tonnes CO<sub>2</sub> eq).

## In FY23, the climate footprint from materials decreased by 17% compared to FY22 and 7% compared to the baseline FY16.

The main contribution to the decrease was a drop in volume (m<sup>3</sup>) of products manufactured in FY23, compared to FY22.

Drawing any further conclusions on the performance of the climate footprint of materials continues to be difficult, as the amount of materials used in the IKEA range is based on estimations for most types of materials. Accurate yearly figures for different amounts of materials continue to only be available for wood and paper. The disclosed climate footprint, therefore, is a conservative estimate that doesn't reflect actual improvements for the materials used in the IKEA range. It also means that there is no update to the figures shared in FY21, where we reported that 56% of the materials we sourced were renewable and 17% were recycled.

During FY22, a project was started to develop solutions for measuring the material amounts, both as designed in the range and as manufactured at

each supplier. Safeguarding data availability and quality, as well as addressing gaps and overlaps, remains a challenge, especially from our suppliers. Work, therefore, continues into FY24 with the aim of providing accurate climate footprints of materials for the next IKEA Sustainability Report and IKEA Climate Report.

Reducing the climate footprint of materials is a long-term development agenda. As a part of our new net-zero goals, we have increased our ambition to halve emissions from materials by FY30 compared to our FY16 baseline. The long-term development and innovation plans for our material agenda are steered by IKEA material directions. These material directions have so far helped us to identify actions that will enable us to reach most of the needed footprint reduction by FY30. Each business plan of our home furnishing businesses is linked to a material roadmap leading up to FY30. These roadmaps address the implementation of material innovations and developments, as well as active material choices within the IKEA range.

The overall challenge of balancing affordability, accessibility, and sustainability remains. Moving

towards more recycled content or using new innovative materials or technologies, for example, can still initially affect the price – limiting the potential scale and impact. Even when affordable, sustainable materials exist, access can be limited or the traceability of the raw materials difficult to secure. Finding innovations and solutions that can be quickly deployed remains challenging as many new materials and technologies are at the research stage or in need of scaling up.

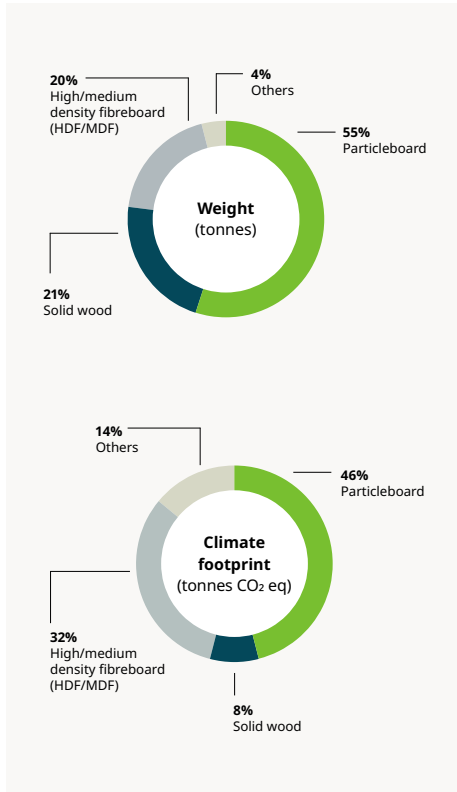
Read more about our work with responsible sourcing of materials in the [IKEA Sustainability Report FY23](#).

<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: Purchased goods and services – raw material extraction and transports occurring until the entry gate of tier 1 home furnishing, food (packaging only), components, and catalogue and print suppliers.

<sup>2</sup> Other: candles, ceramics, custom-made worktops, electronics, green plants, glass and natural fibres.



## Wood-based materials



Share of material weight (% tonnes) vs. climate footprint (% tonnes CO<sub>2</sub> eq).

**Wood is the most widely used material in the IKEA range. It's part of our identity and Swedish heritage and includes particleboard, fibreboard, solid wood, layer glued and veneer. 98% of all wood and paper we use comes from sources such as Forest Stewardship Council® (FSC®) certified or recycled wood. Through our [forest agenda](#), we aim to improve the sustainability performance of wood even more.**

The four main movements to reduce the climate footprint of wood-based materials are:

- Using glues with lower climate footprints (including bio-based glues)
- Increasing renewable energy in board production
- Increasing renewable and recycled content in coatings
- Improving forest management practices and making more from less

The glue used to bond wood components or fibres in IKEA products represents approximately 5% of the total IKEA climate footprint. Moving from fossil-based to bio-based glue is a key enabler for achieving our overall climate goal. We are taking a stepwise approach, aiming for most board-producing factories in the IKEA supply chain to use glues with a lower climate footprints by FY30. This also aligns

with the overall IKEA ambition of aiming to use only renewable and recyclable materials by FY30.

Ensuring that board materials are produced using 100% renewable energy is another way we are reducing the climate footprint of wood-based materials. IKEA owned board factories currently use 91% renewable energy, and we are now in the process of measuring renewable energy at our external board suppliers. We are working towards developing a quantified baseline to identify gaps and take the appropriate actions to secure 100% renewable energy.

Although smaller in impact, we are also taking steps to convert coatings of boards – such as paints and foils – into recycled or renewable content. The goal is to convert 50% into renewable content, compared to today's 5%.

Finally, one of the main ways to lower the climate footprint of wood-based materials is through improved land management practices where wood is sourced. This is a key element of our forest agenda. Read more in the [IKEA Sustainability Report FY23](#).

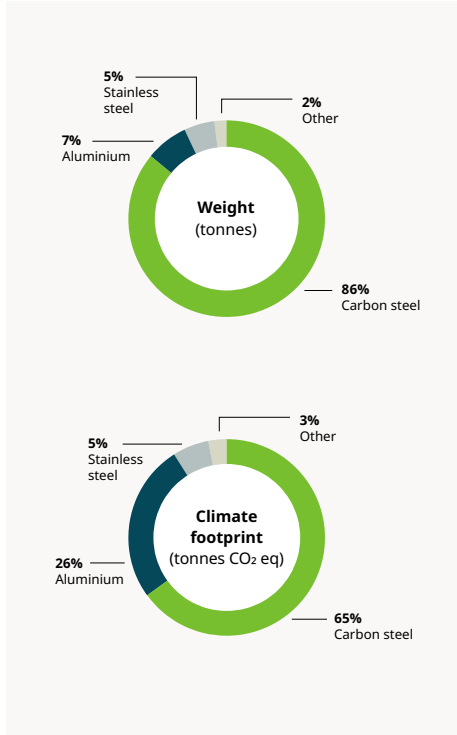


### → The first IKEA Industry board factory to use new bio-based glue

The first IKEA Industry factory to use a glue system made of technical starch from corn<sup>1</sup> in large scale production, is now ongoing in Kazlų Rūda, Lithuania. This results from 10 years of effort to find alternatives to fossil-based glues. At the same time, multiple trials with other glue systems are being conducted.

<sup>1</sup> Technical starch is made from industrially grown plants that are separated from the food value chain.

## Metals



Share of material weight (% tonnes) vs. climate footprint (% tonnes CO<sub>2</sub> eq).

**While metals are recyclable and essential for the IKEA range in fittings and cookware, they have a large climate footprint. This is due to energy-intensive extraction and processing and the heavy use of coal and coke in the steel industry.**

The four main movements to reduce the climate footprint from metals are:

- Increasing recycled content in steel and aluminium
- Using material in a smarter way, such as using less material for the same function
- Using the right material for the right application
- Converting to low-emission steel

Achieving 100% recycled metals is challenging and is currently considered infeasible. This is attributed to a mismatch between the high demand for steel and the limited availability of scrap materials. Additionally, to attain the necessary composition and performance standards, a proportion of virgin material is often required to be incorporated into metals. As a relatively small buyer on the market, our leverage is limited. Based on this, we consider converting to low-emission steel, over further increasing the recycled content, a preferred option in the long term. Since the use of coke and coal has been nearly eliminated in producing these new

and innovative types of steel, they have a much lower climate footprint compared to conventionally produced steel.

Making better material choices in the product development process is another way to reduce the climate footprint of metals. This ensures that we can develop more-from-less solutions, optimise material use in production, and choose the right metal for the right application – which includes selecting carbon steel over stainless steel whenever possible.



ÖNNESTAD – a replica of the GOGO chair from 1973 – uses only half the amount of steel for its production compared to GOGO.

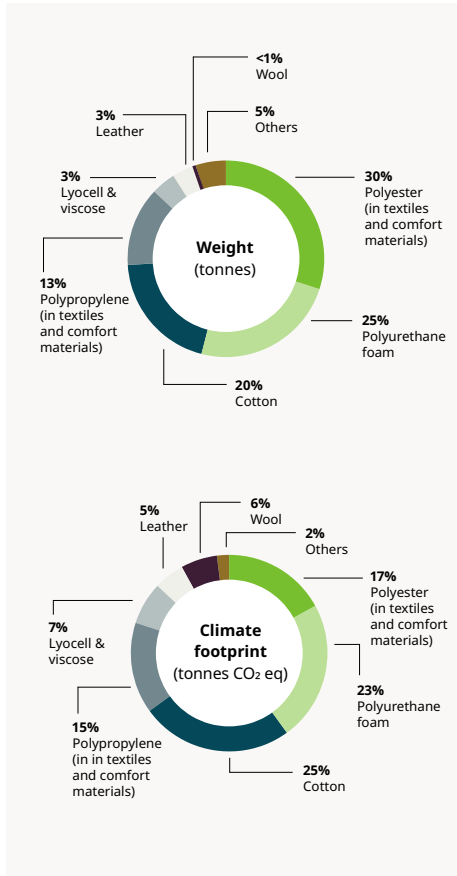
### ➔ Diversifying sourcing of metals with lower climate footprints

In FY23, we made significant progress on the share of recycled aluminium used in IKEA products, with an increase of 77%, up from 57% in FY22. PAX wardrobe sliding doors, for example, are now made with a minimum of 80% recycled aluminium.

For carbon steel, we have focused on sourcing alternative grades, such as high-strength steel. It has a lower climate footprint because less material is needed to reach the required strength compared to standard steel. High-strength steel is being used in, for example, the NYTILLVERKAD collection chair and the ÖNNESTAD chair.

We're also taking advantage of developments in the steel manufacturing industry. For example, we're using hot-rolled steel, which is now available in thicknesses down to 0.9 mm. This allows us to utilise steel produced in a method that has a smaller footprint than the traditional cold-rolled process.

## Textiles and comfort materials



**Materials in this area include textiles from across the home, like bed textiles, curtains, rugs and towels, as well as comfort materials in sofas and mattresses.**

The three main movements to reduce the climate footprint from these materials are:

- Reaching the full potential of recycled cotton and recycled polyester
- Increasing the use of natural and man-made (cellulosic) fibres
- Reducing the use of polyurethane (PU) foam

In our journey towards achieving 100% recycled polyester, we have reached 90% across all polyester-based materials (textiles and filling fibres) in FY23. As we near our goal, we are looking into textile-to-textile recycling of polyester, instead of using PET bottles, as a secondary raw material source. Today, we're already utilising waste textiles from suppliers' production to manufacture a few products, such as the SANDMOTT pillow. In the long term, we hope to combine these sources with post-consumer waste textiles. We are also using more recycled cotton and have reached 5% in FY23.

By FY30, the ambition is to reach 30% recycled cotton. As a next step, the aim is to also begin using post-consumer recycled cotton. Another movement is finding alternatives to cotton with other cellulose or natural fibres, such as bast fibres. Cottonised jute was introduced for products in the table setting

range, like SILVERARV, to create a linen expression at low cost.

For foam, our target for FY25 is for a minimum of 20% of either renewable or recycled content in the polyol (the main ingredient in foam). This supports our agenda to reduce dependency and consumption of virgin fossil materials. As the foam industry develops, we believe the 20% target is challenging but achievable. In FY23, we had approximately 4% recycled or renewable content.

As new foams made with recycled or renewable content perform as well as conventional foams, we are able to introduce them also to existing products, without the need for new product development.

In addition to converting conventional foam to recycled or renewable foam, we are also exploring solutions to replace it. Depending on where PU foam is used in a product and its application, it's easier or harder to replace due to the unique properties of PU foam. One example is in bed headboards, where PU foam has been replaced with wood fibre – high loft non-woven – that we refer to as "wood wool". Another application for "wood wool" is as an acoustic material in the new MITTZON collection. PU foam has also been replaced with vertical folder fibre (VLAP) for the dining chairs LILLÄNÄS and BERGMUND. Mattresses are an area that remains challenging in finding replacement materials. Additional exploration is needed to find a suitable alternative.

### ➔ Towards post-consumer recycled cotton

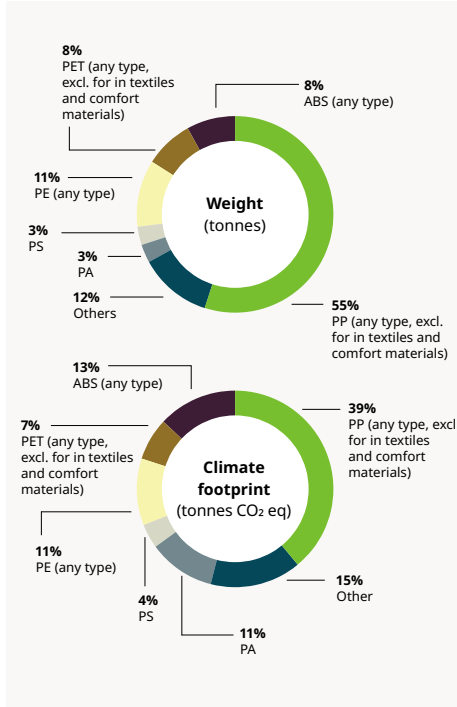
In FY23, we launched two products that use post-industrial recycled cotton. One is the LENDA curtain, which uses 30% recycled cotton. The other is the PARADISBUSKE cushion (shown below), which uses a 100% recycled fibre mix of at least 50% recycled cotton and 40% recycled polyester.



*The filling of the PARADISBUSKE cushion is made from pre-consumer recycled polyester.*



## Plastics



Share of material weight (% tonnes) vs. climate footprint (% tonnes CO<sub>2</sub> eq).

### Sub-goal

By FY28, aim to phase out plastic from customer packaging.

### Plastics are found throughout the IKEA offer – from furniture and electronics to fittings and packaging material.

The three main movements to reduce the climate footprint from plastics are:

- Reaching the full potential of mechanically recycled plastics
- Using mass-balanced renewable and chemically recycled plastics for polypropylene (PP)
- Adopting new technologies and feedstock sources

In FY23, we reduced the amount of plastic packaging of consumer goods by approximately 47% and decreased total plastic packaging (including consumer packs, multipacks, unit loads and handling materials) by approximately 44% compared to FY21.

We continue to shift towards using more recycled or renewable plastics for both existing and new products. However, since these recycled or renewable materials can have different properties, product development is also needed.

In the short term, we'll continue to use more post-industrial feedstock to convert to recycled materials. From FY25 onwards, we'll begin to use more post-consumer – rather than just pre-consumer – and renewable feedstock in our range while we develop innovations in materials and technologies to meet our climate goal and our ambition to only use renewable or recycled materials by FY30. As of January 2020, all single-use plastic products have been removed from the IKEA home furnishing range globally.

Our main challenges include the affordability of, and accessibility to, the right feedstock as well as the right technical solutions on a commercial scale, especially for our three key plastic materials: polypropylene (PP), acrylonitrile butadiene styrene (ABS) and polyamide (PA).

Another challenge is determining the climate footprint of renewable plastics, which is highly dependent on the type of feedstock, management practices, production location and process steps.



### → Lowering the climate footprint of the UPPDATERA cutlery trays

We moved from recycled polyethylene terephthalate (PET) to recycled polypropylene (PP) in our UPPDATERA products (consisting of multi-use plastic boxes) lowering the CO<sub>2</sub> emissions on a material level by approximately 12%. The lower emissions of PP are mainly driven by the lower energy consumption of recycling plastic than for PET. Additionally, this change provided better affordability for customers.



### → Making recycling bins from recycled content

The HÅLLBAR collection, consisting of a series of sorting bins designed to meet waste sorting needs, was launched in 2020. Products in the HÅLLBAR collection are going through a transition to being made from recycled sources.

To date, IKEA plastic products produced in Europe contain at least 70% recycled content, where more than half of it comes from post-consumer sources such as household plastic waste. The same journey is ongoing in the other production regions, resulting in lowering the CO<sub>2</sub> on a material level by approximately 60% compared to if entirely made from fossil virgin plastic.

# Food ingredients

(3.6% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>

FY16: 0.86	Baseline
FY22: 0.87	+0.4% (vs FY16)
FY23: 0.86	-0.3% (vs FY16)
-50% ← Goal FY30 compared to FY16	

## Goal FY30 (updated)

By FY30, reduce the absolute GHG emissions from food ingredients by at least 50% compared to baseline FY16.

## Sub-goal

**Sub-goals 2025:** 50% of main meals offered in the restaurants will be plant-based.



**In FY23, the climate footprint from food ingredients decreased marginally by 0.7% compared to FY22 and 0.3% compared to the baseline FY16.**

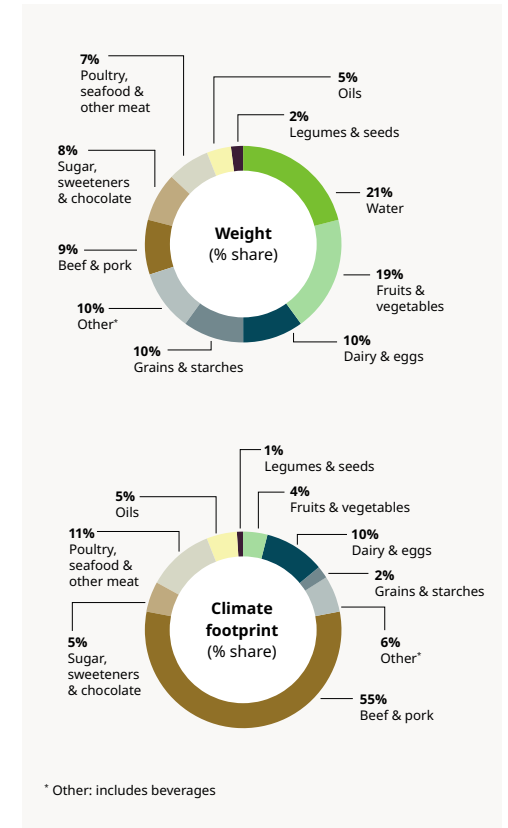
As part of our new net-zero goals, we have revised our goals for food ingredients to 50% emissions reduction compared to baseline FY16 (the previous goal was 25%).

The IKEA food business is undergoing a transformative change. This transformation has impacted both people and systems, which we rely upon for reporting purposes. As a result, the figures in our FY23 Climate Report are based on the best available information given these ongoing developments. We continue to work on improving our data quality and have enhanced the data quality for FY22 and FY23. The historical data (FY16-21) still follows previous logic and assumptions with a larger share of estimated data due to the difficulty of baselining. We aim to update these figures in our FY24 report.

Our sustainability goals to date have primarily focused on increasing the availability of plant-based food offerings, as we recognise the importance of shifting towards more plant-based diets as an important solution for addressing greenhouse gas (GHG) emissions. We also recognise the impacts

that arise from how food is grown, and we continue to work with partners in the supply chain to lessen those impacts. For information about food in our supply chain, see the [IKEA Sustainability Report FY23](#).

We continue to work towards our goal that 50% of the main meals offered in our restaurants will be plant-based<sup>2</sup> by 2025. Based on estimates shared from 31 IKEA retail markets,<sup>3</sup> just over 30% of the main meals offered in FY23 were plant-based. However, there is more work to do in increasing the quantity sold.



<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: Purchased goods and services – raw material extraction and processing of food ingredients up until the entry gate of tier 1 food suppliers.

<sup>2</sup> Meals contain up to 10% animal-produced ingredients, such as dairy, eggs and honey.

<sup>3</sup> Operated by Ingka Group

We recognise the importance of shifting diets toward more plant-based foods as being a key step in addressing the challenges in the global food system.

Some markets have taken additional steps to increase customer appetite for plant-based food and thereby grow the plant-based food sales share compared to traditional meat dishes. IKEA Japan, for example, provided enhanced education to co-workers on the benefits of plant-based food and worked with local suppliers to develop local plant-based dishes. Since FY22, plantball sales have steadily increased across the country.

As of 1 October 2023, we offer plant-based food at the same or a lower price than the animal protein-based alternatives in more than 30 markets.<sup>1</sup> This includes veggie balls, plant balls, veggie hot dogs, and plant-based soft ice.

[Read about our efforts to offer more plant-based food.](#)

Today, the plant ball is available in 55 out of 62 IKEA markets (close to 90%). Our aim is to make the plant ball accessible in all markets.



→ **Introduction of the IKEA plant dog**

The hot dog has been an iconic part of the IKEA shopping experience for over 40 years. Now, we have developed a plant-based hot dog as the latest innovative addition to the family of plant-based products that we offer. We want to inspire even more customers to choose plant-based products at the same price or at a more affordable price compared to animal protein-based options.

The plant-based hot dog was well received by customers in the 14 IKEA markets across Europe, where it launched in FY23. We plan to introduce the plant-based hot dog to eight additional European markets, with expansion to the Australia and US markets in FY24.

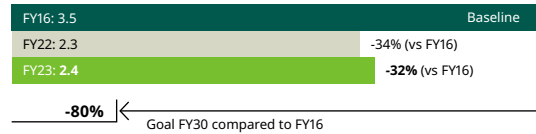
<sup>1</sup> Ingka Group is the largest IKEA franchisee.



# Production

(10% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>

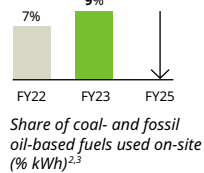


## Goal FY30

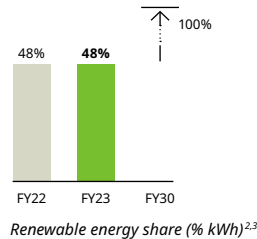
By FY30, reduce the absolute GHG emissions from production by 80% compared to baseline FY16.

## Sub-goals

By FY25 at the latest, phase out all coal- and fossil oil-based fuels used on-site in production where feasible, significantly reducing the climate footprint and improving air quality.



Strive towards 100% renewable energy (electricity, heating, cooling and fuels) in production by FY30.



In FY23, the climate footprint from production increased by 3.4% compared to FY22. Compared to the baseline FY16, we've seen a reduction of 32%.

We saw positive movements in FY23 compared to FY22 with the increase in the share of renewable electricity consumed. The dissonance between the increase in the climate footprint and the reduction in produced volumes is attributable to multiple factors: While we produced fewer goods in FY23 compared to FY22, the costs of sourcing increased in the same time frame. This inflationary situation led to the allocation of more greenhouse gas (GHG) emissions per EUR produced within our supplier factories. Shutting down our production operations in Russia, where we had a large use of biomass, also contributed to an increase in the overall climate footprint for production.

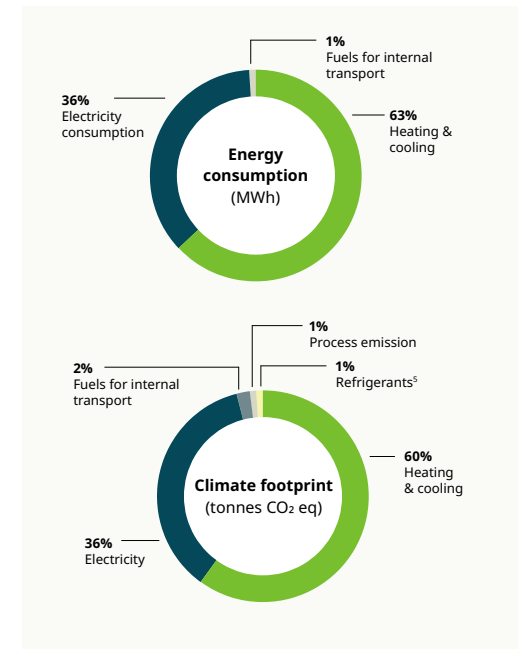
We continue to see strong movements within our IKEA Industry production sites, where we had an internal goal of reaching an 80% GHG emissions reduction by FY25 compared to the FY16 baseline. At the end of FY23, IKEA Industry already achieved a 79% reduction.

In FY23, the business unit inaugurated its largest solar farms at IKEA Industry Zbąszynek and Babimost (Poland) with a capacity of 19.1 MWp. It's one of the largest photovoltaic (PV) farms directly connected to the factory in Poland. So far IKEA Industry has installed over 100,000 PV modules,

totaling 48.4 MW peak capacity, or 49.8 GWh yearly output. In FY23, IKEA Industry sold a majority of its EU-ETS emission rights.<sup>4</sup> The funds from the sale of the emission rights will be reinvested to accelerate climate actions in line with our net-zero goals. This way, we aim to make a more significant contribution to reducing emissions compared to simply retiring the emission rights.

To continue our efforts to drastically reduce GHG emissions from production, striving towards 100% renewable energy, our focus remains on continually improving energy efficiency. We're also focused on the following movements:

- Promoting on-site renewable energy generation and new installations to make more renewable energy available to the many.
- Enabling the purchase of renewable electricity for what can't be generated on-site.
- Phasing out the use of coal- and fossil oil-based fuels used on-site.
- Electrifying production processes, heating and internal transports.



Production climate footprint vs. energy consumption.<sup>3</sup>

<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: Purchased goods and services – scope 1 & 2 emissions and connected scope 3: fuel- and energy-related activities (including transmission and distribution losses) of tier 1 home furnishing, food, components, and catalogue and print suppliers.

<sup>2</sup> To secure consistency with data reported by our external suppliers, data covers the calendar year 2022.

<sup>3</sup> Excludes food suppliers due to breakdown in emission categories not available for these suppliers. Food production accounts for 21% of the total production footprint.

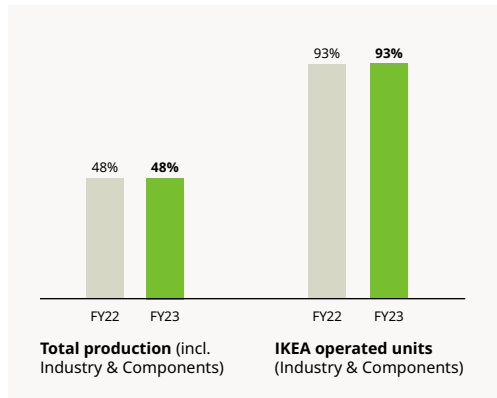
<sup>4</sup> EU-ETS stands for the European Union Emissions Trading System. It is a cap-and-trade system designed to limit greenhouse gas emissions from industries in the European Union.

<sup>5</sup> Refrigerants and process emissions do not consume energy.

## Striving towards 100% renewable energy in production

### In FY23, renewable energy consumption in the production of IKEA products remained flat at 48%.

During FY23, we saw positive movements in the adoption of renewable electricity in our value chain. The share of renewable electricity in production increased from 63% in FY22 to 71% in FY23. This development was counteracted mainly by the stoppage of our factory operations in Russia where we had significant usage of biomass for heating processes. The increase in coal on-site (page 21) also contributed to maintaining the same share of renewable energy on a year-to-year basis.



Renewable energy share (% kWh)

### Renewable electricity

With the launch of the renewable electricity programme for supplier partners in calendar year 2021 (CY21), we started with a focus on three of our largest sourcing markets (in terms of GHG emissions from electricity) – China, India and Poland. Encouraged by the response from supplier stakeholders, we introduced the programme in a second wave of countries during FY23 to support suppliers in the Czech Republic, Germany, Italy, Lithuania, Portugal, Romania, Slovakia, Sweden, Türkiye, and Vietnam.

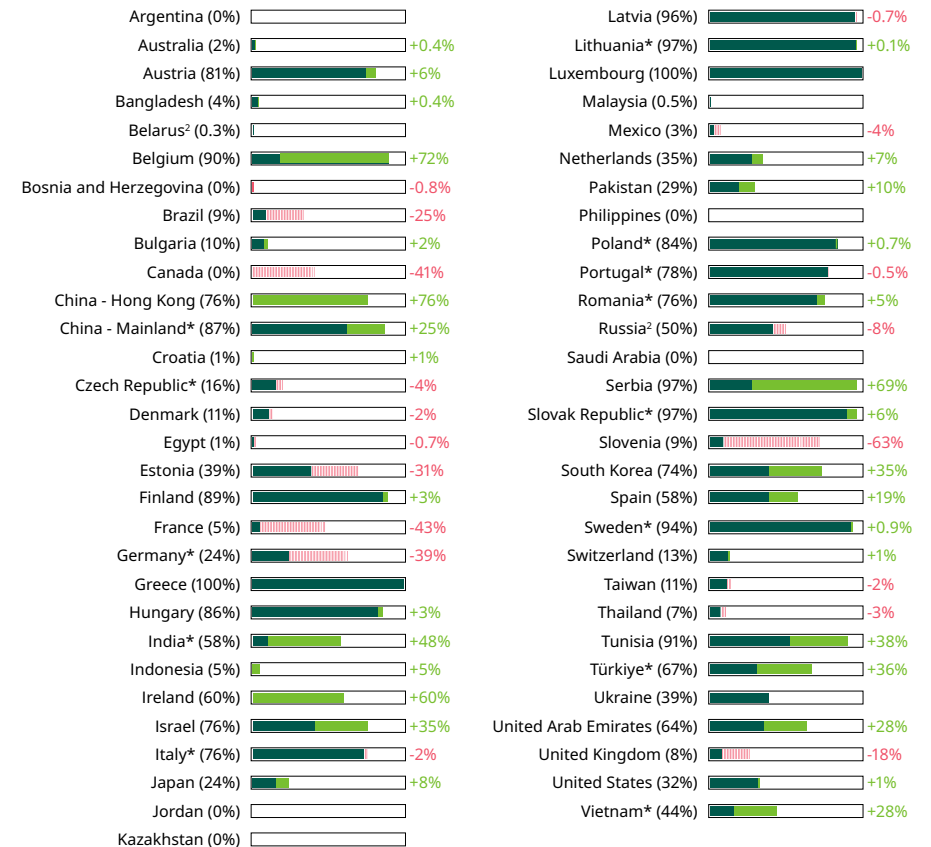
The biggest market movement that we have seen is in China, where the renewable electricity share of total electricity within our supplier partners increased from 62% in FY22 to 87% in FY23.

Among our different types of suppliers, a main driver of the increase of renewable electricity has been IKEA Components suppliers, producing components for our tier-1 suppliers, and within our suppliers producing metals, plastics, and float glass.

In FY23, we introduced more comprehensive and stricter guidelines for the recognition of (continues on next page)

### Share of renewable electricity<sup>1</sup> (% kWh)

● Increase from FY22 (% points, kWh) ● Decrease from FY22 (% points, kWh)



\*Part of renewable electricity programme

<sup>1</sup> The order of the countries is alphabetical and therefore does not represent the quantity of electricity consumed by suppliers in each of the countries.

<sup>2</sup> Includes data collected between January 2022 and March 2022.

(continuing from previous page)  
renewable electricity consumption for our own reporting and for reporting by suppliers. This partly explains the year-on-year downward trend that we see in countries such as Germany.

Compared to FY22, an additional 142 factories and suppliers have achieved 100% renewable electricity consumption, moving the total to 408, which constitutes 37% of our direct suppliers.<sup>1</sup> In terms of our renewable electricity sourcing strategy, we continue to encourage our suppliers to generate as much renewable electricity on-site as possible. For off-site renewable electricity needs, we encourage our suppliers to move towards wind and solar power purchase agreement (PPA) setups. However, as the infrastructure for PPAs is not mature in all the markets, bundled and unbundled energy attribute certificates (EACs) have proven to be an effective interim measure. We have also been working towards facilitating aggregated PPAs for our smaller suppliers whose energy consumption needs do not fit the profile/requirements of a typical PPA setup.

### Renewable heating, cooling and fuels

In terms of heating and cooling, the share of renewable energy has decreased from 42% in FY22 to 36% in FY23.

A large part of this decrease is driven by the following:

- Biofuel consumption (in kWh) for heating saw a 19% decrease in FY23 compared to the corresponding use in FY22, mainly attributable to lower volumes produced in FY23 compared to FY22 and stoppage of our production operations in Russia, where we had significant usage of biomass as an energy source.
- An increase in the share of coal- and fossil oil-based fuels from 7% in FY22 to 9% in FY23.

A combination of these trends has led to a decrease in the overall renewable energy share within heating.

In FY23, we saw some very encouraging initiatives from suppliers in Europe and Asia to decarbonise the consumption of heat in factories. We're starting to see increased adoption of heat pumps to substitute natural gas and purchased steam (from fossil sources) in many production processes.

For our high-temperature production processes, especially within our ceramics supplier base, we continue to explore the viability of green hydrogen.<sup>2</sup> For our glass production, we continue working with suppliers to identify electrification opportunities for the soda-lime glass segment.



<sup>1</sup> Includes home furnishing, components and media print suppliers but excludes food suppliers.

<sup>2</sup> Green hydrogen is hydrogen produced through the electrolysis of water powered by electricity from renewable sources.



## Phasing out coal- and fossil oil-based fuels used on-site



### **The share of coal- and fossil oil-based fuels increased from 7% in FY22 to 9% in FY23.**

Phasing out coal-based fuels remains a challenge, and these fuels continue to have the largest negative impact on climate change and air pollution. Our textile sourcing from India, Pakistan and Türkiye represents 99% of our remaining use of on-site coal, and we have committed phase-out plans from these suppliers. Out of the eight suppliers who reported the use of coal on-site in FY23, six will manage to secure a complete phaseout of coal on-site by FY25, and

the remaining two suppliers will conclude the complete coal phaseout by FY27.

Fossil oil-based fuels are mostly used for internal transport at factories. The electrification of forklifts is, therefore, an important step in reducing these fuels.

## Financing for the on-site generation of renewable energy

**The IKEA business has a EUR 100 million financing programme to support the on-site generation of renewable energy. This provides discounted loans to IKEA suppliers, enabling investments to accelerate the transformation to 100% renewable energy.**

Since the launch of the programme in FY19, the sum of recommended applications has been around EUR 33 million of the EUR 100 million.

During FY23, four supplier business cases were reviewed and recommended for financing. Some of the previously approved investments have seen delays in deployment because of the political and macroeconomic situation in Europe. Some investments, such as the MEVA gasification project, have seen delays related to permits.

Projects to which money has been disbursed will see additional renewable energy of 41 GWh annually and an estimated reduction in GHG emissions of 23,000 tonnes CO<sub>2</sub> eq.

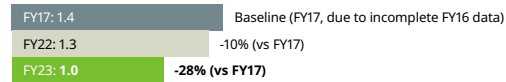
During FY23, we simplified the application process for financing based on feedback from our suppliers. We also expanded the scope of the programme by adding charging infrastructure to the scope of financing investments related to electrification.

Going forward, it's important to gain business cases that address energy-intensive processes such as glass furnaces, ceramic kilns, boilers for heating and steam and surface treatments. Together, these represent a very large part of the climate footprint in production and require large investments to address. Since most of these processes are heat- and fuel-driven, they can't be addressed through the programme to enable the purchase of renewable electricity. Only through on-site investments can these processes be converted to 100% renewable energy.

# Product transport & logistics services

(4.2% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1,2</sup>



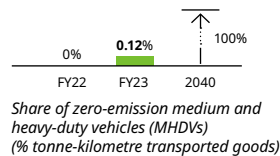
## Goal FY30

By FY30, reduce the relative GHG emissions from product transport by 70% compared to baseline FY17 (in terms of kg CO<sub>2</sub> eq per tonne-kilometre transported goods).

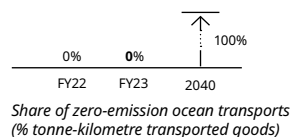
By FY30, reduce the absolute GHG emissions from logistics services by 80% compared to baseline FY19.

## Sub-goals

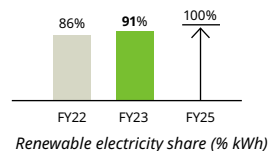
By calendar year 2040, only procuring zero-emission medium and heavy-duty vehicles (MHDVs).<sup>3</sup>



By calendar year 2040, only purchase zero-emission ocean transport services.<sup>4</sup>



By calendar year 2025, consume 100% renewable electricity in all logistics service units.



## In FY23, the climate footprint from product transport and logistics services decreased by 20% compared to FY22, and 28% compared to the baseline FY17.

The IKEA business is a large global shipper. In FY23, we made approximately 1.7 million shipments, generating 1 million tonnes CO<sub>2</sub> eq of greenhouse gas (GHG) emissions.

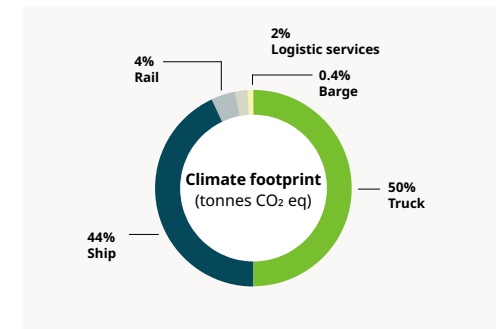
Though we see a decrease of transport by 4% in transported tonne-kilometre compared to our baseline year FY17 (due to lower produced volume), we see a bigger increase in our efficiency and a reduction in relative emissions from product transport (CO<sub>2</sub> eq per tonne km transported) by 5% compared to FY22, and 25% compared to the baseline. The efficiency improvement stemmed from an increased share of intermodal land transportation and increase use of biofuels and electric locomotives. The average loading volume per shipment was increased during FY23, thereby avoiding 19,608 transport shipments. This led to both lower emissions and lower costs.

The share of alternative fuels and electricity used now accounts for 10% in terms of tonne-kilometre goods transported. The use of alternative fuels increased to 10% in FY23, compared to 6% in FY22. The share of land intermodal increased from 46% to 51% since FY22.

The aim is to only use zero-emission medium and heavy-duty vehicles (MHDVs) and only purchase zero-emission ocean transport services by 2040. As this is a long-term agenda and a bigger development is expected during the coming years, we did, however, make small but important steps during FY23. We continued the deployment of electric vehicle (EV) trucks and learned how to utilise them more efficiently. We also became the first member of the Zero Emission Maritime Buyers Alliance (ZEMBA) with the aim to speed up the transformation of the ocean industry towards zero-emission solutions.

Efficiently decarbonising the transport and logistics supply chain requires an end-to-end perspective. The entire journey of home furnishing goods from suppliers to warehouses and stores, via ocean, land, terminals and ports must be considered. By addressing this in a systemic way, sub-optimisation and limiting the focus to only specific parts of the journey are avoided. The decarbonisation agenda is built on the following three pillars:

- **Reduce:** Working together with our service providers to reduce energy and fuel consumption, increase equipment utilisation, and optimise our network.
- **Replace:** Replacing fossil fuels and energy with zero-emission solutions and renewable energy.
- **Rethink:** Integrating innovations and new types of collaborations into our value chain.



<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: Upstream transportation and distribution and connected fuel- and energy-related activities of tier 1 product transport suppliers.  
<sup>2</sup> The baseline for product transport is FY17 due to limitations in source data for FY16 to follow-up progress. For the sake of the baseline for the IKEA value chain, it has been estimated for FY16.  
<sup>3</sup> As defined by [The Climate Group](#).  
<sup>4</sup> As defined by [Cargo Owners for Zero Emission Vessels](#).

## Decarbonising the land section of the transport and logistics supply chain

**Compared to FY22, the absolute climate footprint from road transports decreased by 19% and from rail by 33%.**

The main reason is less transport due to lower sales quantities during FY23. There was also a reduction in the relative emissions from land transport by 7% compared to FY22 and by 26% compared to the baseline FY17. This was due to an increase in the share of intermodal solutions such as rail, short sea and inland waterways. Switching from diesel trucks to intermodal transport also reduces emissions by 50% on average. In FY23, 51% of our global land transportation in terms of transported tonne-kilometres was conducted by intermodal transportation.

### → Collaborations to lower carbon emissions on one of Europe's longest non-stop rail distances

For the first time, the IKEA business collaborated with another transport buyer to transport products over one of the longest rail distances in Europe – around 2,000 km – without stops. An intermodal block train<sup>1</sup> that runs once per week on the Poland-Spain corridor was launched in October 2022. By using the block train instead of road transportation, the result for the IKEA business is an estimated reduction of 4,500 trucks and lowered greenhouse gas emissions by 5,100 tonnes CO<sub>2</sub> eq per year.

### → Deployments of EV trucks in IKEA Industry

In FY23, IKEA Industry in Zbąszynek, Poland, successfully deployed the first three heavy-duty all-electric trucks in the unit, marking a significant shift in zero-emission transport operations. In 2022, in collaboration with external partners, IKEA Industry initiated the operation of these trucks, charging them with renewable electricity from five on-site stations.



### → Learning more about ports in our journey towards zero-emissions transport

Ports are important hubs in our supply chain as they connect land and ocean transportation. That's why they are key to enabling zero-emissions solutions in both ocean shipping and land transportation. We're learning more about the challenges and opportunities of ports and have joined the International Association of Ports and Harbours to participate in discussions on how we can contribute to and identify opportunities for decarbonising the transport industry.

### → Introducing EV trucks in North America

In FY23, we began the transport of IKEA products in Canada and the US on heavy-duty EVs. In Montreal, Canada, two EV trucks are used exclusively for IKEA deliveries from the port to the IKEA distribution centre. In the US, we have deployed EV trucks for round-trip deliveries of containers from the ports of Los Angeles and Long Beach to our nearby warehousing facility.

<sup>1</sup> A block train is a train that transports goods as one unit from the start destination to the end destination without stops.

## Moving towards zero-emission ocean shipping

**In FY23, the absolute climate footprint from ocean transports decreased by 25% compared to FY17.**

This was primarily due to improved vessel efficiency within the industry and the use of biofuels. There was also a reduction in the relative emissions from ocean transport by less than 1% compared to FY22 and by 22% compared to the baseline FY17.

Even though we use biofuels in ocean shipping today, the long-term solution is zero-emission shipping, which is not yet available at scale. To move the industry faster towards zero-emission options, sector initiatives such as the [Cargo Owners for Zero Emission Vessels \(coZEV\)](#) ambition statement and the Zero Emission Maritime Buyers Alliance (ZEMBA), are key.



### ➔ Continuing the journey towards zero-emission ocean shipping

In March 2023, we became the first member of the Zero Emission Maritime Buyers Alliance (ZEMBA). ZEMBA is a buyers' group of cargo owners in which 20 global companies have come together to demand zero-emission ocean shipping.

In September 2023, ZEMBA launched the first-ever request for proposal (RfP) to accelerate the transition to zero-emission shipping – a highly needed action-oriented initiative, where ZEMBA is seeking bids for 600,000 twenty-foot containers (TEUs) fuelled by zero-emission fuels, over a period of three years.

## Striving towards 100% renewable energy in logistics services

**In FY23, the absolute climate footprint from logistics services decreased by 35% compared to FY22.**

The decrease was mainly due to a higher share of renewable electricity, from 86% in FY22 to 91% in FY23. This is on track towards the goal of using 100% renewable electricity by calendar year 2025 (CY25).

The movement was made possible by the renewable electricity programme for suppliers, investments in renewable energy by the IKEA franchisee Ingka Group and making renewable electricity a top priority in the tender processes for external logistics service units.

For external units, IKEA goods sometimes make up only a part of the capacity of a warehouse. However, in line with *going beyond IKEA*, the whole warehouse needs to run on 100% renewable energy, not just the capacity for the IKEA business. This is an example of how the IKEA business influences GHG reductions beyond our climate footprint.

After 100% renewable electricity has been achieved by CY25, the next milestone will be to reach 100% renewable energy (including heating, cooling and fuels) by CY30.

### ➔ New energy-efficient distribution centre in China

When new IKEA distribution centres are built, sustainability needs to be considered from the start. One such example is the new distribution centre in Foshan in southern China, which opened in FY23.

The unit has a total of 4,877 photovoltaic (PV) panels installed on the roof and in the parking lot. These have a capacity of 2.5 MW and can generate around 2 GWh of renewable electricity per year, and also power 20 charging stations for co-workers' electric cars.

To further support zero-emission transports, four charging piles that can charge up to eight EV trucks at the same time are available. Currently, 60% of all transports to and from the unit are made with EV trucks.

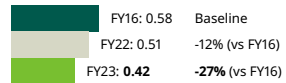
In order to improve the energy efficiency of the distribution centre, skylights are in place to utilise the natural daylight, and all ceilings are equipped with LED lights and daylight sensors. A common monitoring platform is also installed to continually identify energy efficiency improvements.



# IKEA retail & other operations

(1.8% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>



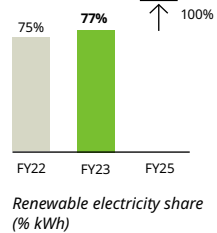
-80% ← Goal FY30 compared to FY16

## Goal FY30

By FY30, reduce the absolute GHG emissions from retail and other own operations by 80% compared to baseline FY16.<sup>2</sup>

## Sub-goal

By FY25, consume 100% renewable electricity in retail and other operations.<sup>3</sup>



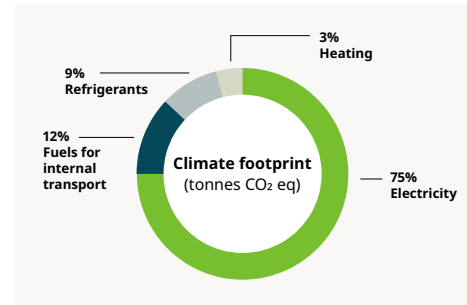
## In FY23, the climate footprint from IKEA retail and other operations decreased by 17% compared to FY22, and 27% compared to the baseline FY16.

We saw a modest increase in both the share of renewable electricity, moving from 75% to 77% between FY22 and FY23, and the overall renewable energy share, which progressed from 63% to 69% between FY22 and FY23. Renewable energy includes renewable electricity in addition to renewable sources of heating, cooling, and fuels for transport. Noteworthy improvements to renewable heating were observed in Germany (+36 percentage points), Lithuania (+18 percentage points) and the Czech Republic (+16 percentage points).

One of the drivers behind the slight increase in renewable electricity share was that IKEA retail Türkiye achieved 100% renewable electricity in FY23, compared to 7% in FY22. We also made significant progress in other retail markets, such as Australia (from 17% in FY22 to 78% in FY23) and Thailand (from 11% in FY22 to 34% in FY23). The new retail market in Chile also opened its first store in Santiago de Chile -

the first IKEA store on the South American continent - with 100% renewable electricity already secured.

Since it's relatively easier to secure 100% renewable electricity, we are focusing on achieving that first. Doing so provides time to identify solutions and plan investments for renewable heating, cooling and fuels, which are more capital-intensive and sometimes require retrofitting existing buildings. We prioritise electrification of heating using ground- and air-source heat pumps over other solutions wherever possible.



## Reducing food waste

We reached the goal of reducing food waste from preparing meals for IKEA restaurants by 54% compared with the baseline FY17. In FY23, we saved up to 8.5 million meals.<sup>5</sup>

The reduction was achieved with a food waste measurement solution that uses a smart scale. The tool measures the amount of food waste produced in IKEA restaurants, bistros, Swedish cafés and co-worker restaurants. By the end of FY23, 95% of all IKEA stores had food waste solutions in place.



## → Halving food waste in line with the SDGs

In June 2023, the World Resources Institute (WRI) recognised the IKEA business for halving food waste (compared to the FY17 baseline, in meal preparation at IKEA restaurants) in line with the UN Sustainable Development Goal (SDG) 12.3,<sup>6</sup> setting an example for other companies.

<sup>1</sup> Scope: GHG Protocol, scope 1 & 2 emissions and scope 3: Fuel- and energy-related activities (including transmission & distribution losses) of Inter IKEA Group operations (excl. production at IKEA Industry and IKEA Components) and IKEA retail part of our franchisees' business. This, therefore, includes scope 3: Franchises.

<sup>2</sup> Scope: Inter IKEA Group and the IKEA retail business of Ingka Group.

<sup>3</sup> Scope: Inter IKEA Group (excl. production at own units of IKEA Components and IKEA Industry) and the IKEA retail business of Ingka Group (scope 1 & 2).

<sup>4</sup> Scope: IKEA restaurants, bistros, Swedish cafés and co-worker restaurants which have implemented the digital solution to measure food waste.

<sup>5</sup> This was calculated for all IKEA CMPs using a food waste digital solution.

<sup>6</sup> WRI, "IKEA Becomes First Global Company to Halve Food Waste" 2023.

## Striving towards 100% renewable energy for IKEA operations<sup>1</sup>

To drastically reduce our GHG emissions in line with the 1.5°C target, we're striving towards 100% renewable energy for all IKEA operations (stores, warehouses, factories, offices and other operations) in every market. In FY23, 25 IKEA markets consumed 100% renewable electricity, compared to 24 in FY22. For heating and cooling, five IKEA markets are at or almost at 100%. In FY23, 257 IKEA stores have installed solar panels (compared to 248 in FY22).

### ➔ Securing 100% renewable electricity from the start in IKEA Retail Chile

In FY23, the IKEA business welcomed its first store in Chile, our first store in South America. Located in Santiago de Chile, this store started operating on 100% renewable electricity from the very beginning.

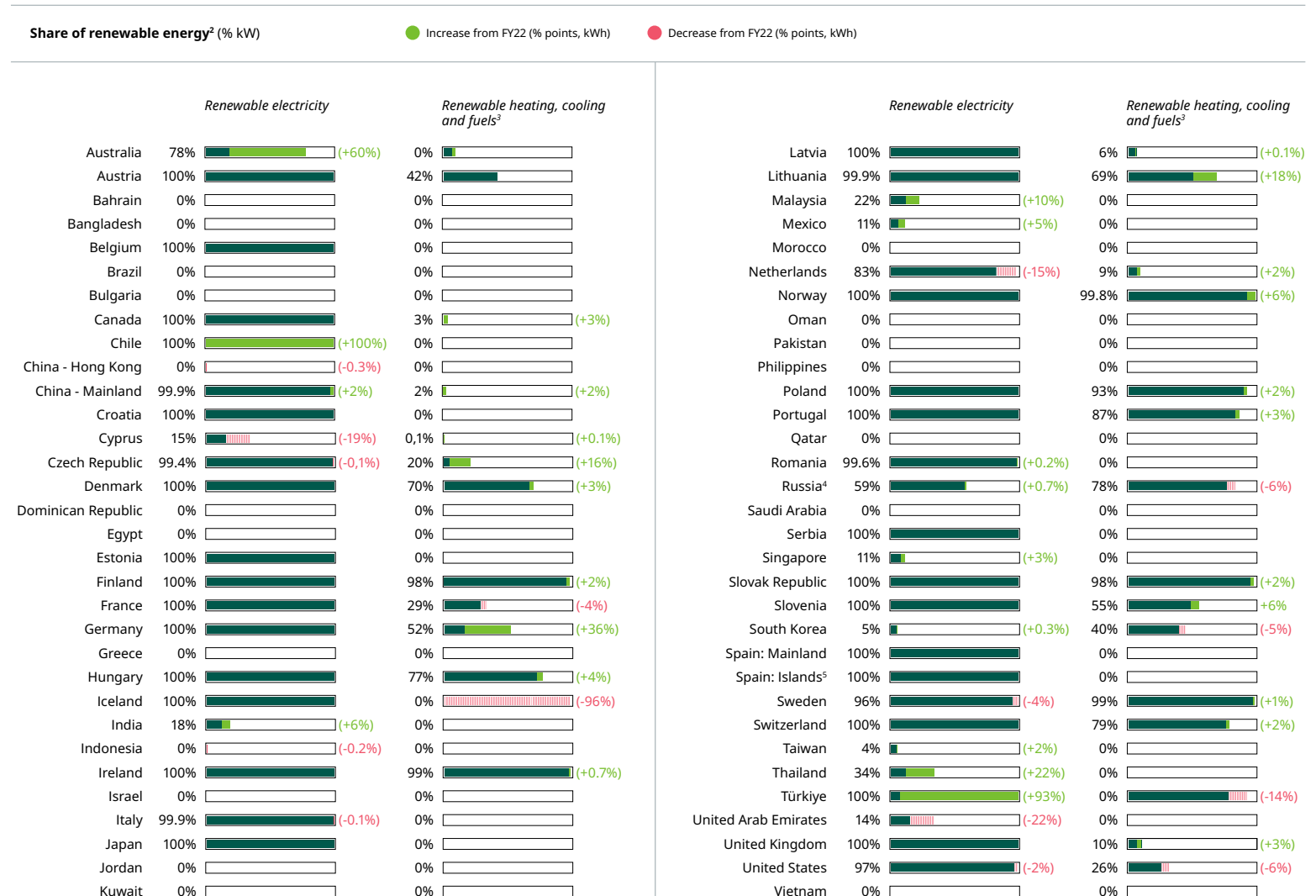
<sup>1</sup> Scope: Inter IKEA Group and the IKEA retail business of each IKEA franchisee. It therefore also includes IKEA Industry and IKEA Components units covered in the production footprint.

<sup>2</sup> The order of the countries is alphabetical and therefore does not represent the quantity of electricity consumed by suppliers in each of the countries.

<sup>3</sup> Excluding electricity.

<sup>4</sup> Reported data is from September 2022 and October 2022 before closure of IKEA retail operations in the country.

<sup>5</sup> The Canary and Balearic Islands (Spain).



# Co-worker commuting & business travel

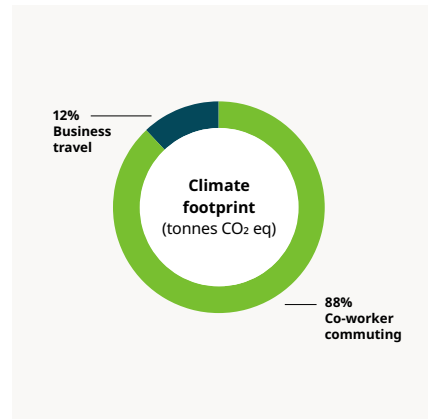
(1.9% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>

FY16: 0.50	Baseline
FY22: 0.45	-9% (vs FY16)
FY23: 0.45	-10% (vs FY16)

## Goal FY30

By FY30, reduce the greenhouse gas (GHG) emissions from co-worker travel by 50% in relative terms per co-worker compared to baseline FY16.<sup>2</sup>



**The climate footprint from co-worker commuting and business travel decreased marginally by 0.5% in FY23 compared to FY22. Compared to the baseline FY16, we've seen a reduction of 10%.**

The business travel climate footprint has significantly decreased, with a 64% reduction compared to the FY16 baseline. This substantial decrease can be attributed to the implementation of the Meet & Travel policy in FY21. This policy was introduced to curtail non-essential business travel, promote more efficient meetings, and ultimately lower greenhouse gas (GHG) emissions and costs.

Notably, we have seen an absolute reduction in air travel by 60%, rental cars by 57% and hotel stays by 83% compared to the FY16 baseline. However, we acknowledge that the lingering effects of the COVID-19 pandemic may still impact travel levels, preventing a complete return to pre-pandemic norms. While the Meet & Travel policy has played a role in driving reductions, external factors, such as ongoing global uncertainties and events, may continue to influence the overall travel landscape.

To help us further achieve our travel goals, we have six objectives, which we measure using key performance indicators. These KPIs are split into two areas – sustainability and cost. As a consequence of the sustainability-related KPIs, we have seen a drop in day trips.

Short-haul flights for day trips are amongst the worst for GHG emissions in terms of efficiency per distance travelled. Our policy is to limit these short-stay trips, and we have seen a 66% reduction in day trips since FY19.

The co-worker commuting footprint, which has increased by 13% compared to the baseline, has, however, decreased by 6% compared to FY22. We continue to implement a hybrid work model for our IKEA office-based employees (excluding those working in our stores and factories), resulting in a reduction in daily commutes to the office.



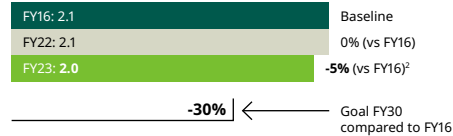
<sup>1</sup> Scope: GHG Protocol, scope 3 emissions – category 6: Business travel of Inter IKEA Group and IKEA retail part of Ingka Group, scope 3 emissions – category 7: Employee commuting of Inter IKEA Group and IKEA retail part of Ingka Group.

<sup>2</sup> Scope: Inter IKEA Group and the IKEA retail business of Ingka Group.

# Customer travel & home deliveries

(8.4% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>

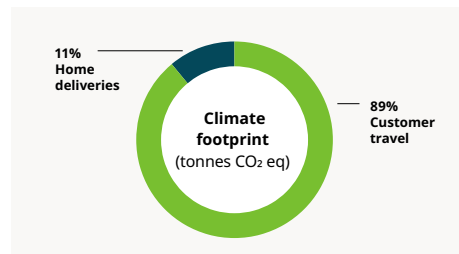
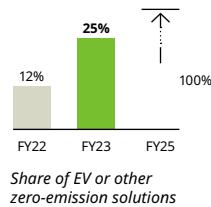


## Goal FY30

By FY30, reduce the absolute GHG emissions by 30% compared to baseline FY16.<sup>2</sup>

## Sub-goal

By FY25, aim for 100% of transport for customer deliveries and services to use electric vehicles (EVs) or other zero-emission solutions.<sup>2</sup>



## In FY23, the climate footprint from customer travel and home deliveries decreased by 5% compared to both FY22 and the FY16 baseline.

This is primarily due to a significant 17% reduction in customer travel emissions compared to the baseline, as well as an 8% improvement in efficiency (in terms of kg CO<sub>2</sub> eq per store customer). The reductions have largely been facilitated by our strategic expansion into city centres, which has improved the accessibility of our stores and meeting places. As a result, average journey times for our customers and co-workers have been reduced, contributing to an overall emissions reduction.

Achieving emission reductions for customer travel depends on the increased use of zero-emission vehicles, particularly electric vehicles (EVs). To support this, the IKEA franchisee Ingka Group expanded its charging infrastructure to 3,090 EV chargers at IKEA stores in FY22. Building on this progress, the number further increased to 4,575 in FY23.

Notably, this year we extended our coverage for customer travel calculations to include IKEA food

customers from the Swedish Food Market, café, and restaurant, which were not accounted for in previous reporting due to data unavailability.

While the absolute emissions from home deliveries showed an 8% increase compared to the baseline FY16, there was a 6% reduction compared to FY22. This is driven by our commitment to increase the share of deliveries made via electric trucks, which rose from 12% to 25% between FY22 and FY23. This transition to EVs marks a significant step forward in our journey towards reducing the climate footprint connected to our operations.

To reach the FY25 goal, aiming for 100% zero-emission home deliveries,<sup>2</sup> we are continuously testing new solutions, such as using hydrogen vehicles in Austria and China. We are also finding innovative ways to increase the share of zero-emission deliveries, such as utilising cargo bikes in Milan and implementing boat deliveries in Paris. While our ambition is 100% zero emissions by FY25, we recognise that more realistically we will reach 80%, due to limitations in technology, availability of charging infrastructure and policies in the markets. Even if this falls short of the 100% ambition, it's a huge leap compared to where we started from.

As part of the goal to reach 50 cities, the IKEA franchisee Ingka Group has deployed 100% zero-emission vehicles in 17 cities and continues to expand this work to additional cities.



## ➔ New, more accessible IKEA city store opens in Copenhagen, Denmark

As a step towards expanding and bringing affordable home furnishing closer to customers, the [first IKEA city store in Denmark](#) opened in August 2023. Its location in downtown Copenhagen makes it accessible for more than a million people within 20 minutes by bike, public transport or car. To support more sustainable travel to and from the store, the city store has 500 bike parking spaces. Loaner cargo bikes and direct home delivery options are also offered for customers – enabling zero-emission home deliveries. 250 trees and shrubs are planted on-site with a quarter of the façade covered with green planting. The open roof garden also serves as a new public park within the city and will become part of a long green pedestrian street on rooftops. Solar cells on the roof also contribute to providing renewable energy to the store.

<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: Downstream transportation and distribution of Inter IKEA Group operations and IKEA retail part of our franchisees' business.

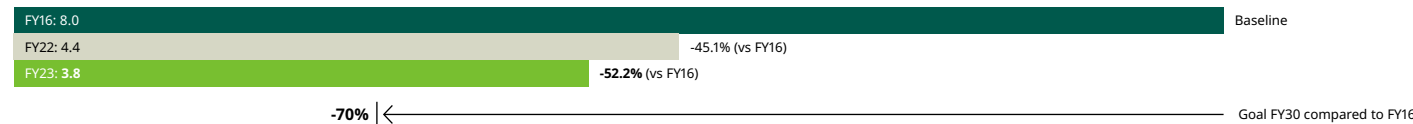
<sup>2</sup> Scope: Inter IKEA Group and the IKEA retail business of Ingka Group.



# Product use at home

(15.9% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>



## Goal FY30 (updated)

By 2030, reduce the absolute GHG emissions from product use at home by at least 70% compared to baseline FY16.

## Sub-goal

By FY30, phase out all fossil-based paraffin used for candles.

**In FY23, the climate footprint from product use at home decreased by 13% compared to FY22 and 52% compared to the baseline FY16.**

As a part of our new net-zero goals, we have revised our goals in product use at home to 70% emission reduction compared to baseline FY16.

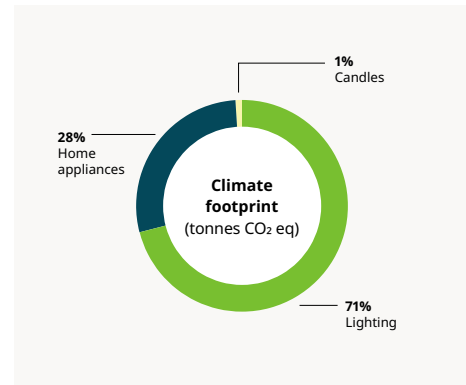
Most of the footprint from product use at home comes from the electricity consumption of products such as lighting and home appliances. A smaller portion comes from gas hobs, refrigerants used in refrigerators and freezers, and the burning of candles at home.<sup>2</sup>

In FY23, due to significant progress made since FY16, we set a new goal for product use at home. Our previous internal goal was for a 30% absolute reduction by FY30 compared to baseline FY16. As

that goal was met a few years ago, a new goal was pending based on the net-zero alignment.

Since FY22, the climate footprint from product use at home decreased by 13%, mainly due to reductions coming from lighting (-7 percentage points) and appliances (-6 percentage points), while the reduction in candles is negligible. The development mainly stems from the continued improvement of energy efficiency and a larger sales share of our most energy-efficient LED bulb range, SOLHETTA.

The decrease in sales volume, including a 2.7% decline for lighting and 7.4% for appliances compared to FY22, was a contributing factor to the reduction. There was also an increase of 4 percentage points in renewable electricity consumed by customers across all IKEA markets since FY22.



<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: Use of sold products and connected fuel- and energy-related activities (incl. transmission & distribution losses).

<sup>2</sup> Smart home products from IKEA are currently excluded from the footprint. We are developing the methodology to measure the climate footprint of smart home products from IKEA, and it will be included in the FY23 climate report.

## Lighting

### **In FY23, the climate footprint from the electricity consumption of lighting used in customers' homes has decreased by 10% compared to FY22 and 56% compared to the baseline FY16.**

Since FY16, the energy efficiency of lighting has improved by 87% and the climate footprint has been reduced by 56%. That means for each kWh of electricity consumed, more light is generated and less energy is lost as heat. Compared to FY22, the energy efficiency in terms of lumen per Watt (lm/W) has improved by 6%.

We have a roadmap in place with clear goals and actions to continually improve the energy efficiency of our range by FY30, while maintaining a well-designed and affordable offer. The IKEA lighting range has offered energy-efficient LEDs exclusively since FY15.

Since the baseline FY16, lighting is by far the biggest contributor to the emissions reduction of product use at home, accounting for 43 percentage points of the total reduction of 52%. While a significant improvement in energy efficiency is the main reason for the reduction, there has also been a lower quantity in sales. Of the 52% reduction, a lower sales quantity for our lighting range accounts for 15 percentage points out of the total reduction. As the number of products sold determines this footprint, tracking quantity sold is more relevant than the development in produced volumes used for footprints upstream in the supply chain.

Apart from our own development, the average amount of renewable electricity customers consumed across all IKEA markets has increased by 10 percentage points since the FY16 baseline. This result underscores the importance of engaging externally and advocating for policies and regulations that enable our customers to consume renewable electricity at home. With a stronger development in the share of renewable electricity in national power grids, the climate footprint in customers' homes would be significantly smaller.



#### → **Expanding SOLHETTA, our most energy-efficient LED range**

In FY23, we sold 58.1 million LED Bulbs (per product type classification). We continue to develop and grow the range of more energy-efficient bulbs, expanding the selection in both style and function to enable more ways to reduce electricity consumption in homes. A key movement is replacing less energy-efficient parts of the lighting range with SOLHETTA.

This was a big contributor to the 6% increase in energy efficiency. In FY23, the SOLHETTA LED bulb accounted for 78% of all LED Bulbs sold (quantity in package), compared to 58% in FY22. SOLHETTA has an average energy efficiency of 134 lm/W, which is considerably higher than the average 81 lm/W of the non-SOLHETTA range.



## Candles



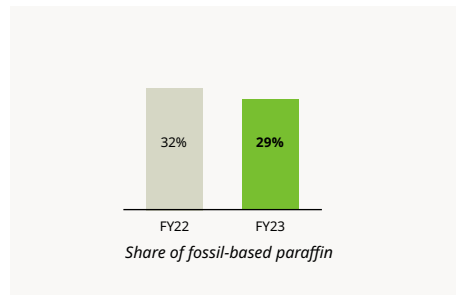
**In FY23, the climate footprint from the burning of candles in customers' homes has decreased by 20% in FY23 compared to FY22 and 43% compared to the baseline FY16.**

The reduction is mainly due to lower sales of candles (in terms of total weight) and, to a lesser degree, to the reduction of the use of fossil-based paraffin and the introduction of new renewable waxes. Since FY22, we've increased the amount of renewable wax in our range from 68% to 71%.

While the actual CO<sub>2</sub> emissions of burning candles are the same regardless of the wax used, the contribution to global warming varies depending on whether it's a fossil-based or a renewable wax (i.e., the global warming potential).

We've set a goal to phase out fossil-based paraffin by FY30. To understand the climate footprint of candles, it's important to look at both the burning at home and the climate footprint to make the wax (i.e., the material). For the latter, it's important to include the impact of the land use and land-use change of the crop used for the wax, as well as the processing steps along the supply chain.

Finding suitable alternatives to fossil-based paraffin is challenging, and we will continue to actively search for and test replacements. Despite this, we're continuously increasing the use of renewable candle waxes, and we are moving towards more diverse sources of vegetable-based waxes from, for example, rapeseed and soy.



## Home appliances

**The climate footprint of IKEA home appliances used by customers at home has decreased by 19% in FY23 compared to FY22 and 41% compared to the baseline FY16.**

Two main factors contributed to the reduction. The first is an increase, from 38% in FY22 to 43% in FY23, in the share of renewable energy from the electricity grids in retail markets where appliances are sold. This means that the electricity our customers are consuming to use IKEA appliances has a lower climate footprint. The second cause for the decrease is a 7% decrease in sales quantity. Compared to FY22, the energy efficiency improved marginally by 0.5% in terms of kWh consumed per year. Since FY16, the energy efficiency of appliances has improved by 11.4%.

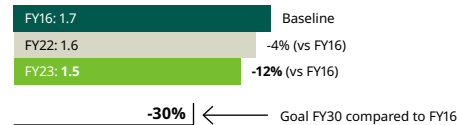
Similar to lighting, we have a roadmap for FY30 in place with clear activities to improve energy efficiency by introducing more energy-efficient gas hobs, which will be achieved through new technologies, over the coming years.



# Product end-of-life

(6.2% of the total IKEA value chain climate footprint in FY23)

Climate footprint (million tonnes CO<sub>2</sub> eq)<sup>1</sup>



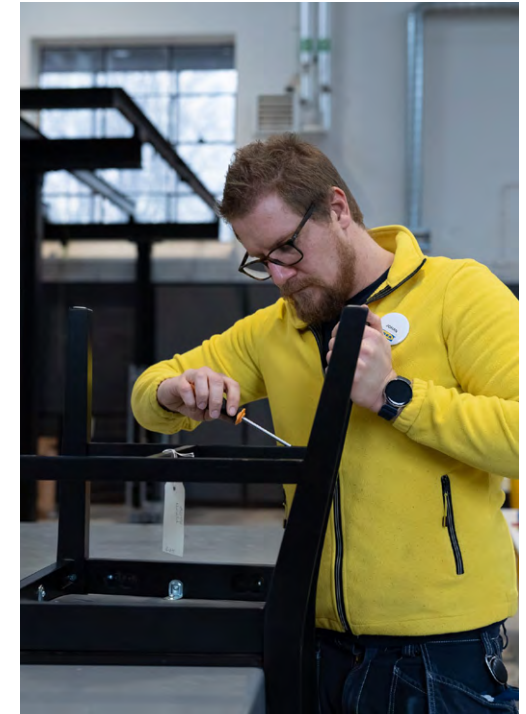
**In FY23, the climate footprint from product end-of-life decreased by 9% compared to FY22 and 12% compared to the baseline FY16.**

As a part of our new net-zero goals, we have set a goal for product end-of-life. We aim to reduce emissions by 30% compared to the baseline FY16.

As in FY22, the decrease in the climate footprint for product end-of-life is primarily due to a decrease in the total weight of products sold. Our current calculation model is based on estimations of the weight of products sold and the national averages on end destinations of waste: recycling, incineration and landfill. This model will be updated during FY24 to account for movements towards designing our products for recycling. Another improvement in the model will be to move away from using national averages on end destinations for different types of waste and instead to specify the local infrastructure near each IKEA store.

Our journey to transform into a circular business will reduce the chances that our products end up in landfills or are incinerated. We're working to prolong the life of our products, supporting the development of responsible waste management set-ups and circular product loops. We're also working together with communities where we source to enable an increased recycling infrastructure.

If we manage to design all products to be recycled and enable recycling in our markets, then we'll be able to, in principle, eliminate this climate footprint by FY30. However, the first step is prevention. We'll encourage reuse and work with refurbishment and repair to ensure products last as long as possible and are recycled only as a last step.



<sup>1</sup> Scope: GHG Protocol, scope 3 emissions: End-of-life treatment of sold products.



# Air pollution

**Clean air is essential for a healthy and more sustainable life. We are committed to actively reducing air pollutants from our operations and in customers' homes.**

Last year, we published what was among the first ever outdoor air pollution inventory of a business across its value chain. The purpose of doing this is to be transparent about the impact on air pollution caused by our business. We also want to raise awareness about the importance of disclosing and addressing air pollution in hopes that other businesses and organisations do the same and take measures to address this very important topic.

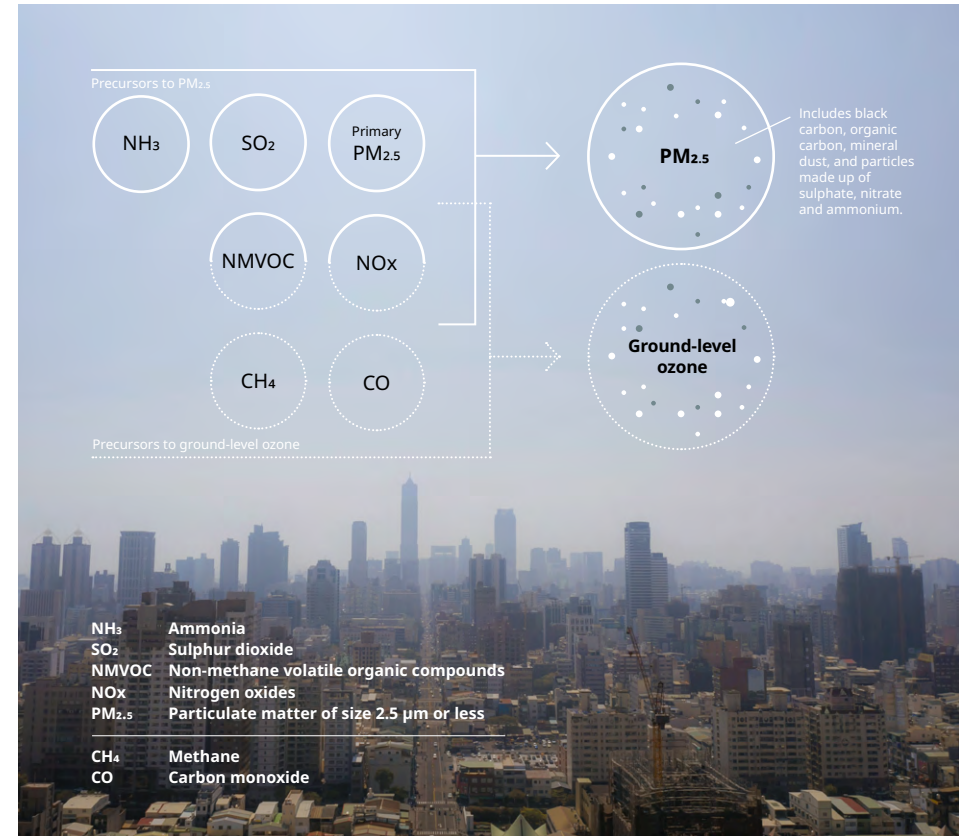
In FY23, we continued to build on our air pollution agenda. Through the digitalisation of the climate footprint reporting, we hope to have the final activity data available to also disclose the air pollution footprint from materials and food ingredients in the IKEA Climate Report FY24.

We have also been developing mitigation scenarios for air pollution across our value chain. As we outlined in the IKEA Climate Report FY22, we see that our decarbonisation agenda has ancillary benefits with our air pollution agenda. Working on the root causes of emissions will help mitigate negative

impacts of air pollution while making the correct renewable energy choices.

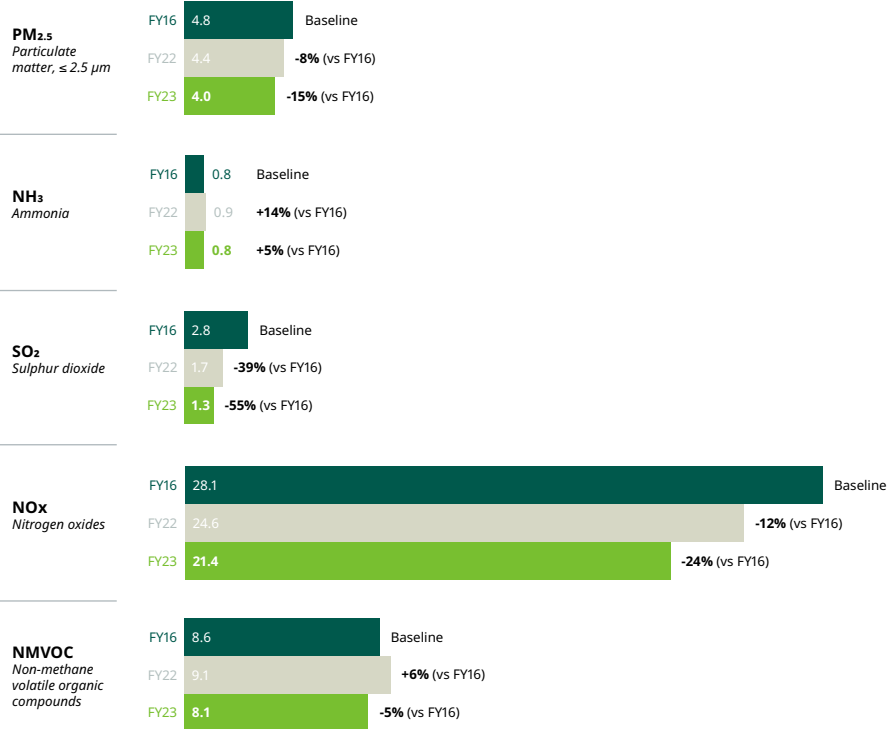
Movements that will contribute to reducing air pollution include:

- Aiming towards only having electric and other zero-emission home deliveries by FY25 – reducing air pollution generated in populated areas (see [page 28](#)).
- Using only zero-emission heavy-duty vehicles by calendar year 2040 at the latest (see [page 22](#)).
- Purchasing only zero-emission ocean shipping by calendar year 2040 (see [page 22](#)).
- Phasing out coal- and fossil oil-based fuels used in the production of IKEA products, where feasible, by FY25 at the latest (see [page 21](#)).
- Investing in new, cleaner technology to generate electricity and heat on-site from wood waste with very limited emission of air pollutants, such as the technology by MEVA Energy.<sup>1</sup>
- Increasing the number of plant-based options in our food range and agricultural management practices used (e.g., from livestock and fertilisers), reducing air pollution generated by agriculture.
- Consuming only 100% renewable electricity in IKEA retail markets and the top 10 supplier markets by FY25 (see [page 25](#)).



**Overview of the air pollutants with the largest adverse effect on health**  
Based on the impact on health, Inter IKEA Group, in alignment with the Alliance for Clean Air, has decided to track the following five air pollutants over time: NH<sub>3</sub>, SO<sub>2</sub>, NMVOC, NO<sub>x</sub>, and PM<sub>2.5</sub>. Methane (CH<sub>4</sub>) is also important to track but is currently not possible to extract from the current greenhouse gas emissions reporting. This will be addressed in the future.

**Air pollutants tracked within the IKEA value chain – performance vs. baseline FY16 (thousand tonnes)**



For a full breakdown of emissions across the stages of the value chain, see appendix page 36.

*Progress in reducing air pollution in FY23*

- During FY23, PM<sub>2.5</sub> decreased by 8% compared to FY22, mainly because of our increased consumption of renewable electricity across production, retail and other operations.
- Sulphur dioxide levels went down by 26% compared to FY22 and 55% compared to FY16. This strong progress was a result of a higher adoption of intermodal solutions – increasing from 46% in FY22 to 51% in FY23.
- Nitrous oxides levels also saw a decrease of 12% compared to FY22 and a reduction of 24% since FY16. The increase in renewable electricity across our value chain, the increased efficiency of our lighting range coupled with grid improvements in various markets around the world and the move to zero emission vehicles played a significant role in reducing this air pollutant.



## Appendices





## Greenhouse gas inventory: scope emissions 1, 2 & 3

Sum of GHG emissions (tonnes CO <sub>2</sub> eq)	FY16	FY17	FY18	FY19	FY20	FY21	FY22	FY23
<b>Scope 1</b> On-site generation, fuel combustion and refrigerants	122,975	115,729	110,893	82,962	70,978	68,714	78,371	61,467
<b>Scope 2</b> Purchased electricity & heating								
<b>Location-based</b>	430,830	378,183	413,843	405,406	377,651	369,515	371,606	283,571
<b>Market-based</b>	278,014	220,216	269,193	158,879	92,860	76,987	28,804	17,621
<b>Scope 3</b>								
<b>1. Purchased goods and services</b>	15,981,148	16,197,335	17,209,516	17,004,122	15,264,259	16,562,384	16,397,911	13,987,358
Food ingredients	963,022	899,309	974,772	891,476	721,033	700,534	867,276	861,316
Materials	12,104,912	12,292,274	13,238,396	13,087,259	11,835,942	13,639,662	13,477,895	11,215,033
Production	2,856,825	2,938,986	2,947,516	2,968,840	2,671,931	2,177,642	2,007,006	2,183,274
Retail equipment & co-worker clothing	56,389	66,766	48,832	56,547	35,354	44,546	45,733	43,358
<b>2. Capital goods</b>	199,633	193,558	348,943	316,464	188,116	126,622	114,448	286,463
<b>3. Fuel- and energy-related activities</b>	108,960	71,947	97,880	60,845	55,585	49,334	41,527	31,325
<b>4. Upstream transportation and distribution</b>	1,253,607	1,387,283	1,463,193	1,385,675	1,188,797	1,358,230	1,260,073	1,006,777
<b>5. Waste generated in operations</b>	53,190	79,700	103,207	87,552	51,432	46,654	36,179	34,069
<b>6. Business travel</b>	145,809	140,092	148,713	113,583	54,336	13,457	28,818	52,848
<b>7. Employee commuting</b>	352,820	376,863	393,447	397,395	388,376	427,260	423,540	397,390
<b>8. Upstream leased assets</b>	0	0	0	0	0	0	0	0
<b>9. Downstream transportation and distribution</b>	2,132,296	2,175,531	2,263,626	2,263,156	1,975,340	1,976,729	1,886,727	1,811,155
Customer travel	1,940,864	1,956,449	2,013,753	1,954,469	1,708,100	1,645,102	1,668,882	1,606,902
Home deliveries	191,432	219,082	249,873	308,687	267,240	331,627	217,845	204,253
<b>10. Processing of sold products</b>	0	0	0	0	0	0	0	0
<b>11. Use of sold products</b>	7,990,576	7,467,481	7,230,826	6,384,018	5,743,429	5,534,869	4,390,868	3,819,585
Appliances	1,780,111	1,756,626	1,777,768	1,752,255	1,529,837	1,653,852	1,309,509	1,056,961
Candles	71,946	68,051	66,232	58,792	53,269	56,031	51,614	41,309
Lighting	6,138,519	5,642,804	5,386,826	4,572,898	4,157,939	3,824,338	3,029,556	2,721,315
Home electronics	0	0	0	73	2,384	649	189	0
<b>12. End-of-life treatment of sold products</b>	1,686,746	1,668,840	1,783,251	1,782,493	1,635,301	1,771,085	1,619,666	1,480,157
<b>13. Downstream leased assets</b>								
<b>14. Franchises</b>	572,923	581,000	675,573	626,581	632,016	585,336	510,644	421,964
<b>15. Investments</b>	0	0	0	0	0	0	0	0
<b>Grand total</b> (For scope 2 emissions, the market-based value is used for purchased electricity and heating)	30,878,697	31,417,301	32,098,261	30,663,726	27,340,825	28,597,660	26,817,574	23,723,800
<b>Outside the scopes</b> Biogenic emissions (from on-site fuel combustion)	430,126	363,543	428,057	485,710	452,485	443,576	495,822	370,009



## FY23 progress on external initiatives

The following is a summary of all IKEA commitments towards external initiatives. Based on the pre-defined scope of each initiative, the values could differ compared to those shared in the IKEA Sustainability Report FY22 and IKEA Climate Report FY22.

### Science Based Targets initiative (SBTi)

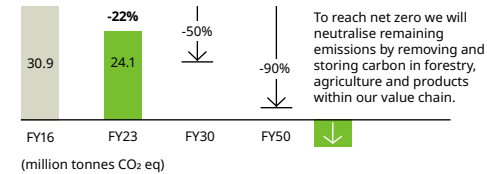
The target boundary includes biogenic emissions and removals from bioenergy feedstocks. For greenhouse gas (GHG) emissions from bioenergy, the global warming potential (GWP) of CO<sub>2</sub> is assumed to be zero, while the GWP of CH<sub>4</sub> and N<sub>2</sub>O are still included. See listed emission factors in the climate footprint calculation methodology, [page 38](#).

Goal FY30<sup>1</sup> and FY50<sup>1</sup>

**NEW Goal FY30<sup>1</sup>:** Inter IKEA Group commits to reduce absolute GHG emissions across the IKEA value chain (scope 1, 2 & 3) at least 50% by FY30, from a FY16 base year. This includes a reduction of at least 50% for scope 3 GHG emissions.

**NEW Goal latest FY50<sup>1</sup>:** Inter IKEA Group commits to reach net-zero GHG emissions across the value chain by latest FY50.

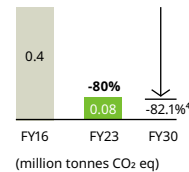
Progress FY23



Goal FY30

Progress FY23

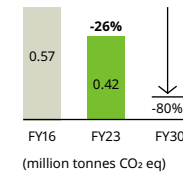
Inter IKEA Group commits to reduce scope 1 & 2 GHG emissions -82.1%<sup>4</sup> compared to FY16.<sup>3</sup>



Goal FY30

Progress FY23

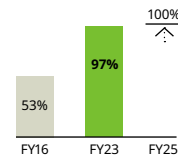
**FY30 goal (updated)<sup>1</sup>:** For IKEA franchisees' (scope 3, category 14) retail operations (their scope 1 & 2), reduce the respective absolute GHG emissions 80% by FY30, from the FY16 base year.



Goal FY25

Progress FY23

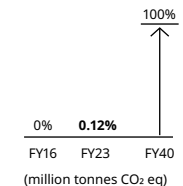
Inter IKEA Group commits to consume 100% renewable electricity for its own operations (scope 1 & 2) by FY25.



Goal CY40

Progress FY23

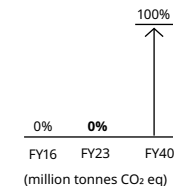
**EV100+ by The Climate Group:** Only procuring zero-emission medium and heavy-duty vehicles (MHDVs).



Goal CY40

Progress FY23

**Cargo Owners for Zero Emission Vessels (coZEV):** Only purchase zero-emission ocean transport services.



### Coolfood Pledge<sup>5</sup>

The figures below are a summary of the progress versus the IKEA commitment for the Coolfood Pledge. The goal is to, by FY30, aim for at least a 25% absolute reduction in food-related GHG emissions or a 38% relative reduction in food-related GHG emissions per 1,000 calories compared to FY16.

Progress against 25% absolute target (million tonnes CO<sub>2</sub> eq)

	Agriculture supply chain emissions	Carbon opportunity costs	Total	% change since baseline
<b>FY16</b>	1.01	4.13	5.14	<b>0%</b>
<b>FY17</b>	0.99	4.03	5.03	<b>-2%</b>
<b>FY18</b>	1.04	4.19	5.23	<b>+2%</b>
<b>FY19</b>	0.88	3.41	4.29	<b>-16%</b>
<b>FY20</b>	0.72	2.77	3.49	<b>-32%</b>
<b>FY21</b>	0.83	3.40	4.24	<b>-18%</b>
<b>FY22</b>	1.00	4.15	5.15	<b>0%</b>
<b>FY30</b>	-	-	-	<b>-25%</b>

Progress against 38% relative target (kg CO<sub>2</sub> eq per 1,000 kcal)

	Agriculture supply chain emissions	Carbon opportunity costs	Total	% change since baseline
<b>FY16</b>	2.53	10.32	12.85	<b>0%</b>
<b>FY17</b>	2.46	9.99	12.45	<b>-3%</b>
<b>FY18</b>	2.41	9.73	12.14	<b>-6%</b>
<b>FY19</b>	2.10	8.14	10.24	<b>-20%</b>
<b>FY20</b>	2.04	7.84	9.88	<b>-23%</b>
<b>FY21</b>	2.31	9.45	11.77	<b>-8%</b>
<b>FY22</b>	2.35	9.77	12.12	<b>-6%</b>
<b>FY30</b>	-	-	-	<b>-38%</b>

<sup>5</sup> The figures presented here differ from those in the rest of the IKEA Climate Report FY23 because its calculation methodology introduces concepts such as the Carbon Opportunity Costs. As this is reported in the beginning of each calendar year, the IKEA Climate Report FY23 covers the progress up until the calendar year 2022.

<sup>1</sup> Submitted to SBTi in mid-November 2023 and pending approval.

<sup>2</sup> Pending methodology through the Land Sector and Removals Guidance by the GHG Protocol.

<sup>3</sup> Scope includes scope 1 & 2 emissions for Inter IKEA Group owned operations for IKEA retail & other operations and production (IKEA Industry and IKEA Components).

<sup>4</sup> Preliminary submission to SBTi for scope 1 and 2 reduction is 82.1%. We might revise and strengthen the target in our FY24 report.

# Climate footprint calculation methodology

## Overall

The following is a high-level summary of how the IKEA climate footprint is calculated. The scope covers the entire IKEA value chain. This includes the raw material extraction and processing for the materials or food ingredients used in the IKEA range, how they are produced at our direct suppliers or IKEA owned factories, and then transported to the IKEA stores and warehouses. It covers all IKEA stores, warehouses, offices and other operations, as well as co-worker commuting and business travel. All travel by IKEA customers to IKEA stores is included, as well as any home deliveries, ordered by customers, of products from IKEA stores to their homes. The product use at home is mainly the electricity consumption needed to power our lighting and appliances products, as well as the GHG emissions released when burning candles. Finally, the climate footprint from the product end-of-life is included should a product not be recycled, but instead incinerated or landfilled. Some agendas are still under development. Until these are integrated into other climate footprints, they are categorised as "Other" for the sake of transparency.

The climate footprint calculations are conducted in line with the GHG Protocol and its guidance documents.

The calculation models are annually reviewed to reflect the IKEA value chain, and its parts, as accurately as possible. Updates could be made due to increasing traceability and gaining access to more supplier-specific information – moving

away from qualified estimations – or that science and accounting standards are improved. Historical data is always revised to ensure that all disclosed performance reflects progress and not a change in accounting.

## Emission factors

For used emission factors, please see each separate entry.

We always strive to use the latest values for global warming potentials of reported GHG as defined by the Intergovernmental Panel on Climate Change (IPCC) in its Sixth Assessment Report (AR6). Due to a lag in updates in third-party emission factor databases and for the purposes of comparability, this can differ. As soon as these sources are updated with AR6 values, we will adapt to these and secure that IKEA climate footprint calculations are conducted in line with the most recent IPCC reports.

For GHG emissions from bioenergy, the global warming potential (GWP) of CO<sub>2</sub> is assumed to be zero, while the GWP of CH<sub>4</sub> and N<sub>2</sub>O are still included.

The following types of emission factors may be referenced in the report and are defined below:

- Well-to-Tank (WTT): WTT fuels account for the upstream scope 3 emissions associated with extraction, refining and transportation of the raw fuel sources to site (or asset) prior to combustion.

- Tank-to-Wheel (TTW): TTW emissions cover all the energy used once transformed. These are emissions occurring during the combustion of fuels by vehicles.
- Well-to-Wheel (WTW): WTT + TTW together make up WTW GHG emissions.

## Materials

The climate footprint of materials is calculated as the cradle-to-gate<sup>1</sup> footprint from raw material extraction and all processing steps and transport up until the gate of our tier 1 suppliers where the IKEA products are manufactured, which are covered under "production". The amount of material is multiplied with an emission factor specific to its recycled content, renewable content, sourcing country (if available) and material company (if available), using ecoinvent and other life cycle assessment (LCA) databases. The emission factors are based on sector averages, which are then modelled based on the amount of traceability and primary data we have available for the supply chain of that material. As more traceability is gained or more primary data is obtained from our material suppliers, the emission factors are continually refined to make them more specific to the IKEA supply chain.

For material amounts, measured data exists for all wood and paper because systems are in place to measure and follow up on at least a yearly level. These represent about three-quarters of the

material amounts. For the other material areas, we currently lack systems to follow up, and so we rely on close collaboration with our direct suppliers to estimate the amounts to the best of our knowledge. As we improve our ability to measure more materials and have to estimate a smaller part of our material usage, the material footprint is subject to change.

However, historical data is always revised for comparability to ensure that any trend is due to improvements of the materials rather than the data quality.

The climate footprint is also subject to change as the emission factors in ecoinvent and other LCA databases are updated from one version to another.

## Food ingredients

The climate footprint for food ingredients is calculated in a similar way as materials – from cradle-to-gate to the factory manufacturing the food products. For food ingredient amounts, a system is in place to measure the ingredients per product for the global food range. A majority of the market-specific range is now also measured using the same system. Today, 20% of the total weight sold is estimated due to lack of recipe-specific data. The climate footprint is also subject to change as the emission factors in ecoinvent and other LCA databases are updated from one version to another.

<sup>1</sup> Cradle-to-gate is an assessment of a partial product life cycle from resource extraction to factory.

In FY23, we made the following updates to the methodology:

- The calculation logic was updated based on availability of the market-specific range, reducing the share of estimated data. This update was conducted for years FY22 and FY23. By next report, all historical data will be updated with the improved calculation logic and recipe data.

### Production

The climate footprint of production is the final step in the supply chain where IKEA home furnishing or food products, components or printed media are produced. It also includes the IKEA owned factories operated by IKEA Industry and packaging and distribution units by IKEA Components. The footprint is measured as the scope 1 and scope 2 emissions of each tier 1 supplier or unit, as well as any connected fuel- and energy-related activities (scope 3, category 3). All units provide their primary data on the consumption of energy sources and refrigerants, as well as any renewable energy attributes for purchased energy (electricity and district heating and cooling). The related GHG emissions for each energy source are calculated using emission factors provided by the GHG Protocol (combustion of fuels), UK Department for Business, Energy & Industrial Strategy (BEIS) (upstream emissions of purchased fuels and refrigerants), and the International Energy Agency (IEA) (purchased electricity and heating). In FY23, we have continued to use the market-based approach as set in FY22. During FY23, we introduced

stricter guidelines for recognition of renewable electricity consumption. We introduced principles related to accounting rules and acceptable geographical attributes, time recognition and technology selection.

### Product transport and logistics services

The climate footprint of product transport is measured as any transport managed by IKEA Supply Chain Operations, IKEA Industry, IKEA Components and IKEA Marketing & Communication. In essence, this is all product transport from our direct supplier to any IKEA unit, as well as product transport between IKEA units. It is measured per shipment for each transport route and calculated in line with the standard EN 16258. The emission methodology in this category is in alignment with GLEC Framework by Global Logistics Emissions Council (GLEC).

In FY23, we made the following updates to the methodology:

- The climate footprint of logistics services now incorporates emissions from the distribution centres that are operated by the IKEA franchisee Ingka Group based on Distribution Service Agreement with Inter IKEA Group and the distribution centres owned by Inter IKEA Group. These were previously under the Retail and Other Operations footprint as part of Category 14: Franchises.

### IKEA retail and other operations

The climate footprint of IKEA retail and other operations covers all IKEA operations (stores, warehouses, offices, etc.) by Inter IKEA Group and the IKEA retail business of each of the IKEA franchisees. It does not include IKEA owned factories by IKEA Industry and packaging and distribution units by IKEA Components, since these are reported in production.

The footprint is measured as the scope 1 and scope 2 emissions of each unit, as well as any connected fuel- and energy-related activities (scope 3, category 3). All units provide their primary data on the consumption of energy sources and refrigerants, as well as any renewable energy attributes for purchased energy (electricity and district heating or cooling).

The related GHG emissions for each energy source are calculated using emission factors provided by the GHG Protocol (combustion of fuels and refrigerants) and the IEA (purchased electricity and heating). The only exception to this is for the IKEA franchisee Ingka Group, where the GHG emissions from fuels are calculated using emission factors by BEIS. Work is in progress to align the emission factors throughout the IKEA businesses.

### Co-worker commuting and business travel

The climate footprint from co-worker commuting for the Inter IKEA Group is based on the survey conducted for co-worker travel to stores, factories and offices by the IKEA franchisee Ingka Group.

This survey data acts as a representative sample and reflects the total commuting patterns of all employees of the IKEA business. The commuting schedule and number of days working are applied to the actual number of employees for Inter IKEA Group, the IKEA franchisee Ingka Group and other IKEA businesses.

For business travel, the climate footprint is calculated by our travel agencies and their travel booking systems, which have integrated climate footprint calculations. All climate footprints are calculated using emission factors provided by BEIS and encompass various modes of travel, including air, rail, public transport, rental cars, private vehicles, taxis and hotel accommodations.

Both footprints cover WTT emission factors.

In FY23, we made the following updates to the methodology:

- The methodology for co-worker commuting now encompasses the return journey for co-workers, which was previously omitted from our calculations, resulting in a twofold increase in our climate footprint.

### Customer travel and home deliveries

The climate footprint of customer travel is measured on the IKEA store level based on the number of customers (transactions) combined with a survey through Brand Capital. The survey provides the average time travelled by customers to the store per mode of transport. The average travel time at the

city level per mode of transport is converted into distance using Numbeo. Emission factors for each mode of transport are obtained from BEIS. WTT emission factors have been applied to the climate model for both the customer travel and home deliveries footprints.

A fuel-based approach has been used to arrive at last-mile emissions. The fuel consumption was estimated by using an average fuel consumption per kilometre for diesel and an average for kWh per km for electric vehicles. Data for certain IKEA franchisees has been estimated where unavailable.

As the IKEA business is driving visitation to the IKEA customer meeting points, the methodology will be reviewed to better reflect our new way of meeting the customer and new ways to deliver products to customers' homes.

In FY23, we made the following updates to the methodology:

- We expanded customer categorisation beyond IKEA store customers to include IKEA food customers, driven by improved data availability. The data now includes IKEA customers coming to the Swedish Food Market, Café and/or restaurant. This adjustment has resulted in a higher count in the number of IKEA customers compared to calculations of previous years. It provides a more comprehensive and accurate assessment of our customer base and its climate impact.
- Updated emission factors have been used both from BEIS and Numbeo.

### **Product use at home**

The climate footprint of product use at home is based on the energy consumption for the home use of IKEA lighting, home appliances and home electronics as well as the burning of candles. Smart home products from IKEA are currently excluded from the footprint. We are developing the methodology to measure the climate footprint of smart home products from IKEA, and it will be included in the FY24 climate report. The energy consumption is measured in line with the GHG Protocol as the energy consumption through the product's lifetime. Since, in principle, all energy consumption is electricity consumption, the climate footprint is calculated by multiplying the energy consumption with that of the national electricity grid for the specific country in which the product was sold. For candles, the climate footprint is calculated by multiplying the amount of wax (in terms of weight) with the specific emission factor for combustion for the specific wax (emission factors provided by the GHG Protocol).

To calculate the share of renewable electricity, a location-based approach is used since we cannot track the specific electricity contract of each customer.

In FY23, no changes to the methodology was conducted.

### **Product end-of-life**

The climate footprint for product end-of-life is calculated in a similar way as materials. The big difference is the scope, which is the grave (end-of-life) footprint, not the cradle-to-gate we use for materials. The weight of material in products sold is multiplied with an end-of-life emission factor specific to that material and the country's average waste handling in each IKEA market.

Currently, no consideration in the model is taken for how the product has been designed for recycling or the specific waste-handling infrastructure at the IKEA store level.

The climate footprint is subject to change as the accuracy for the amount of materials increases and the emission factors in ecoinvent and other LCA databases are updated from one version to another.

In FY23, no changes to the methodology were conducted.

### **Other**

In addition to the climate footprints above, there are areas currently not as actively addressed. Until the agendas of these mature and they are integrated into the other climate footprints, they are kept under the category "Other". This includes capital goods, waste generated in operations, and material for retail equipment and co-worker clothing. For transparency purposes, these footprints are calculated and disclosed.



## Air pollution inventory: emissions across the IKEA value chain

<i>Air pollutants (tonnes)</i>	<b>FY16</b>	<b>FY17</b>	<b>FY18</b>	<b>FY19</b>	<b>FY20</b>	<b>FY21</b>	<b>FY22</b>	<b>FY23</b>
<b>Materials</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Food ingredients</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Production</b>								
PM <sub>2.5</sub>	1,757	1,724	1,854	2,019	1,755	1,518	1,509	1,394
NH <sub>3</sub> (Ammonia)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SO <sub>2</sub> (Sulphur dioxide)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NO <sub>x</sub> (Nitrogen oxides)	3,785	3,797	3,859	3,870	3,532	3,076	3,154	3,179
NMVOC (Non-methane volatile organic compounds)	3,375	3,230	3,495	4,007	3,523	3,079	3,111	2,656
<b>Product transport &amp; logistics services</b>								
PM <sub>2.5</sub>	626	622	631	596	549	636	710	564
NH <sub>3</sub> (Ammonia)	37	37	31	30	30	32	40	32
SO <sub>2</sub> (Sulphur dioxide)	2,563	2,543	2,668	2,510	1,580	1,410	1,501	1,078
NO <sub>x</sub> (Nitrogen oxides)	11,513	11,436	11,007	10,417	9,427	10,793	12,346	9,826
NMVOC (Non-methane volatile organic compounds)	324	323	269	253	234	270	332	266
<b>IKEA retail and other operations</b>								
PM <sub>2.5</sub>	53	56	60	60	56	60	62	59
NH <sub>3</sub> (Ammonia)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SO <sub>2</sub> (Sulphur dioxide)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NO <sub>x</sub> (Nitrogen oxides)	656	683	740	715	669	686	662	593
NMVOC (Non-methane volatile organic compounds)	9	9	10	10	10	11	12	12
<b>Co-worker commuting and business travel</b>	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
<b>Customer travel and home deliveries</b>								
PM <sub>2.5</sub>	1,162	1,168	1,223	1,239	1,108	1,081	981	969
NH <sub>3</sub> (Ammonia)	6	6	6	6	6	6	5	5
SO <sub>2</sub> (Sulphur dioxide)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NO <sub>x</sub> (Nitrogen oxides)	4,504	4,684	4,998	5,400	4,793	4,831	3,165	3,077
NMVOC (Non-methane volatile organic compounds)	1,406	1,558	1,603	1,783	1,610	1,681	1,625	1,577
<b>Product use at home</b>								
PM <sub>2.5</sub>	506	505	509	482	449	437	390	397
NH <sub>3</sub> (Ammonia)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
SO <sub>2</sub> (Sulphur dioxide)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
NO <sub>x</sub> (Nitrogen oxides)	5,011	4,743	4,621	4,106	3,681	3,531	2,829	2,500
NMVOC (Non-methane volatile organic compounds)	73	69	69	66	62	60	53	51
<b>Product end-of-life</b>								
PM <sub>2.5</sub>	650	639	665	748	695	798	733	666
NH <sub>3</sub> (Ammonia)	743	765	788	868	840	919	853	788
SO <sub>2</sub> (Sulphur dioxide)	206	210	217	200	193	209	190	175
NO <sub>x</sub> (Nitrogen oxides)	2,614	2,660	2,743	2,544	2,453	2,656	2,423	2,229
NMVOC (Non-methane volatile organic compounds)	3,370	3,361	3,528	4,016	3,744	4,324	3,962	3,580

# Air pollution footprint calculation methodology

## Overall

We're aware that key parts of the value chain are missing in our air pollutant emissions inventory – especially materials and food ingredients – but our aim is to be transparent about the impact we can confidently disclose today to raise awareness about the importance of disclosing and addressing air pollution. Each entry within this section will specify the scope and methodology used in the FY23 calculation. As we learn, and as the guidance further improves, the air pollution inventory will likewise improve.

The air pollution footprint calculations are conducted in line with "A Practical Guide for Business: Air Pollutant Emission Assessment" by Climate and Clean Air Coalition and Stockholm Environment Institute (hereafter referred to as "the Guide"), which Inter IKEA Group was part of developing.

The calculation models are reviewed annually to reflect the IKEA value chain and its parts as accurately as possible. Updates could be made due to increasing traceability and gaining access to more supplier-specific information – moving away from qualified estimations – or that science and accounting standards are improved. At all times, all historical data is revised to ensure that all disclosed performance reflects progress and not a change in accounting.

There is currently no guidance on how to calculate the air pollution footprint using a market-based approach for renewable energy consumption. Therefore, the air pollution inventory is calculated based on a location-based method, mainly relying on grid-average data.

We aim to disclose the impact on both climate and clean air in the actions we take in our climate agenda, where feasible.

While the creation of this inventory is a very important first step, there were also three key limitations and challenges that we faced during this first year:

1. The Guide covers six key emitting sources that can contribute to air pollutant emissions across a company's value chain. These include electricity consumption, stationary fuel combustion, transport, industrial processes, agriculture and waste. Due to time and data constraints, the IKEA inventory currently covers four out of these six key emitting sources (e.g., all sources apart from agriculture and industrial processes).
2. Emission factors were not available in the European Monitoring and Evaluation Programme (EMEP)/European Environment Agency (EEA) Guidelines for some key activities that are part of the IKEA value chain, specifically for the processing of raw materials into materials. This means that not all air pollutant emissions could be covered under industrial processes of materials.
3. For transport, a simplified model was used to quantify emissions, which can introduce uncertainty in the air pollutant emissions occurring from this specific source.

As outlined in the best practices within the guidance for inventory compiling, these limitations and challenges have been mapped and clearly identified by the team that has been working to quantify air pollutant emissions across the IKEA value chain, and

we will be working to improve and further refine the existing inventory.

## Emission factors

All emission factors used are provided by the Guide. The Guide's emission factors come from EMEP/EEA air pollutant emission inventory guidebook 2019. In addition to the emission factors provided by the Guide and EMEP/EEA, a few additional adjustments have been made to create the air pollution reference data used for the inventory:

- Electricity consumption: The inventory has been based on tier 1 emission factors on different types of fuel used to generate electricity provided in the Guide. To create country-specific emission factors for each air pollutant, fuel mix data for electricity output from International Energy Agency (IEA) relates to respective tier 1 emission factors to calculate a weighted average.
- Stationary fuel combustion: Air pollutants for this scope have been based on the tier 1 default emission factors for stationary fuel combustion provided in the Guide. No additional adjustments have been made, but only mapped to the respective fuels in activity data.
- Waste: Default emission factors for tier 1 different waste treatment methods from the guidance has been used for the inventory. These waste treatment methods have been mapped to the treatment method share per country from "OECD: Environment/Waste/Municipal Waste – Generation and Treatment" to calculate country-specific emission factors.

## Materials

Air pollution from materials is currently not included in our disclosure due to limitations in data available to measure the footprint sufficiently and accurately, and not all industrial processes found in cradle-to-gate LCAs of materials used in the IKEA range are today covered by the emission factors provided by the Guide.

As data availability within IKEA increases and the completeness of industrial processes in the air pollution guidance increases, it will enable us to also disclose the air pollution footprint from materials.

## Food ingredients

Air pollution from food ingredients is currently not included due to limitations in data available to measure the footprint sufficiently and accurately.

## Production

The air pollution footprint of production is the final step in the supply chain where the IKEA home furnishing or food products, components or printed media is produced. It also includes the IKEA owned factories operated by IKEA Industry and packaging and distribution units by IKEA Components.

The footprint is based on any on-site generation of energy and any purchase of energy (e.g., electricity, heating, etc.), corresponding to the scope 1 and scope 2 emissions in the GHG Protocol of each tier 1 supplier or unit. All units provide their primary data on the consumption of energy sources, as

well as any renewable energy attributes for bought energy (electricity and district heating or cooling). The related air pollution for each energy source is calculated using emission factors provided by the Guide.

### **Product transport and logistics services**

The air pollution footprint of product transport is measured as any transport managed by IKEA Supply Chain Operations, IKEA Industry, IKEA Components and IKEA Marketing & Communication. In essence, these are all product transports from our direct supplier to any IKEA unit, as well as product transports between IKEA units.

It is measured per shipment for each transport route and calculated by using the EMEP/EEA air pollutant emission inventory guidebook 2019.

The air pollution for logistics services is based on any on-site generation of energy and any purchase of energy (e.g., electricity, heating, etc.), corresponding to the scope 1 and scope 2 emissions in the GHG Protocol. It does not currently include stationary fuel combustion. The scope includes distribution units owned by Inter IKEA Group and those operated by IKEA Franchisee Ingka Group.

### **IKEA retail and other operations**

The air pollution footprint of IKEA retail and other operations covers all IKEA operations (stores, warehouses, offices, etc.) by Inter IKEA Group and the IKEA retail business of each of the IKEA franchisees. It does not include IKEA owned factories by IKEA Industry and packaging and distribution units by IKEA

Components, since these are reported in production.

The footprint is based on any on-site generation of energy and any purchase of energy (e.g., electricity, heating, etc.), corresponding to the scope 1 and scope 2 emissions in the GHG Protocol of each tier 1 supplier or unit. All units provide their primary data on the consumption of energy sources, as well as any renewable energy attributes for bought energy (electricity and district heating or cooling). The related air pollution for each energy source is calculated using emission factors provided by the Guide.

Air pollution from stationary fuel combustion is currently not included in our disclosure. While we have activity data for the scope of operations connected to this footprint, work remains to be done to connect the applicable air pollutant emission factors.

### **Co-worker commuting and business travel**

Air pollution has not been calculated for co-worker commuting as an accurate model has yet to be developed.

### **Customer travel and home deliveries**

The air pollution footprint of customer travel is measured on the IKEA store level based on the number of customers (transactions) combined with a survey through Brand Capital on the mode of transport to the store by customers as well as distance and time travelled. The total distance travelled per mode of transport to the store is

multiplied by the respective air pollutant emission factor. An occupancy rate has also been applied for the modes of transport. Air pollution from hotel stays has not been calculated. For emissions from home delivery, the air pollutant factor for trucks less than 7.5 tonnes from EEA is considered representative of the trucks the IKEA business uses. In case the Euro class types are unknown the average is considered. Air pollutants factors for FY16–23 are based on EMEP/EEA guidebook. The distance per fuel type is multiplied by the respective fuel type per emission factor.

### **Product use at home**

The air pollution footprint of product use at home is based on the energy consumption at home for lighting, home appliances, and home electronics. The burning of candles is currently excluded. Smart home products from IKEA are currently excluded from the footprint. We are developing the methodology to measure the climate footprint of smart home products from IKEA, and it will be included in the FY24 climate report.

The energy consumption is measured in line with the GHG Protocol as the energy consumption through the product's lifetime. Since, in principle, all energy consumption is electricity consumption, the air pollution footprint is calculated by multiplying the energy consumption with a country-specific emission factor. This is calculated using energy mixes provided by the IEA (purchased electricity) and energy source-specific emission factors for the generation of electricity provided by the Guide.

### **Product end-of-life**

The air pollution footprint for product end-of-life is calculated in a similar way as materials. The big difference is the scope, which is the grave (end-of-life) footprint, not the cradle-to-gate we use for materials. The weight of material in products sold is multiplied with an end-of-life emission factor specific to that material and the country's average waste handling in each IKEA market. Currently, no consideration in the model is taken to how the product has been designed for recycling or the specific waste-handling infrastructure at the IKEA store level.