Reducing Volatile Organic Compounds (VOCs) in footwear manufacturing

The manufacture of shoes, especially high-performance sports shoes, involves the use of adhesives to bond different parts together. Traditionally, adhesives based on solvents containing VOCs have been used in the manufacture of athletic shoes. However, these solvents can have harmful impacts on people and the environment.

Since 2011, we have applied a broad range of alternatives to these adhesives. These include switching to water-based adhesives and, more recently, adopting new production technologies and design techniques that allow shoes to be made with fewer parts and therefore less adhesive. Together, these methods help us reduce our VOCs emissions while ensuring we continue to use energy and water efficiently.

In 2020, our VOCs emissions were estimated to be 3,881 tons in our strategic factories. This is based on the calculation of the total adhesive consumed, including disposed volume at the factories. In the future, we plan to calculate the amount of adhesive used per item, based on information received from our suppliers.

In 2020, the Japanese Ministry of Economy, Trade and Industry (METI) awarded us the 'Product Safety Award' in recognition of our safety efforts.

Product Safety
2020
PS Awards
Ministry of Economy, Trade and Industry, Japan

Operations

Our Net-Zero 2050 Target

As an apparel and footwear company, we can make a positive contribution to global climate goals by adjusting the way in which we operate, including our manufacturing processes. Manufacturing requires energy and water, and it produces greenhouse gas emissions. Many of our key environmental targets therefore aim to reduce carbon emissions towards net-zero by 2050.

We have set several targets and actions towards achieving this net-zero target, involving the increased use of renewable energy and overall reduction in energy use in our operations. To accelerate our action on climate change, we support the the Financial Stability Board's Task Force on Climate-related Financial Disclosures (TCFD), on which you can find more information in the TCFD appendix.

Energy efficiency and carbon emissions

We have set targets for emission reduction in line with climate science and in accordance with the Science Based Targets initiative (SBTi). We were the first sporting goods company to have the targets approved by SBTi. We work to reduce our emissions within both the direct scope of our own operations and the wider indirect scope, for example, operations associated with manufacturing and transportation.

Reducing the carbon footprint of our direct operations

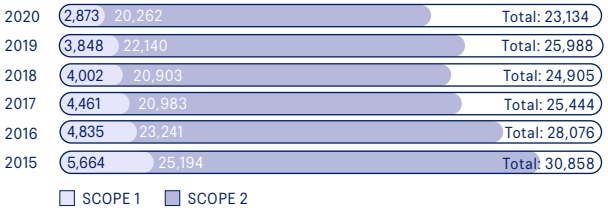
Our strategy to reduce energy use and CO_2 emissions includes:

- Increasing the use of on-site and off-site renewable energy
- Increasing energy efficiency in high energy usage locations
- Introducing more energy-efficient equipment and vehicles
- Adopting energy-efficient design to new buildings, distribution centers and retail stores or refurbishment of existing locations

Our target for 2030 is to reduce absolute greenhouse gas emissions from our direct operations (Scope 1 and 2), including retail operations, by 63% from a 2015 baseline. Our target for 2020 was to reduce absolute greenhouse gas emissions from our direct operations by 5% from a 2015 baseline.

In 2020, our CO_2 emissions decreased 25.0% from the baseline year and also compared to 2019 due to offices and retail stores closing because of COVID-19. Comparing our total emissions to our business revenue shows an increase in our efficiency from the baseline year. The CO_2 emissions intensity per unit revenue has decreased by 2.3% from the baseline year. In 2021, we will continue our sustainable energy projects to both increase efficiency and ratio of renewable electricity which will reduce the absolute energy consumption and emissions every year.

CO_2 emissions from our locations (tons)



The data applies to ASICS Group locations, including offices, retail locations, distribution centers, and wholly owned factories around the world. Company/lease car impacts are also included.

Figures for Scope 1 are calculated according to factors based on the 2006 IPCC Guidelines (Commercial Institutional). Company/ lease car impacts in Brazil are calculated with factors using 2015 DEFRA data. Figures for Scope 2 are calculated according to factors based on IEA's CO_2 Emissions from Fuel Combustion 2016.

The following formula is used when the amount of energy consumption for CO_2 emissions is not available for any sites:

(energy consumption per square meter estimated for each type of site) **x** *(area of site)* **x** *(CO_2 emission factor).*

The Certificate of Green Power 1.6 GWh was deducted from the total Scope 2 in 2018 data. The 2019 data is restated due to updated data and improved estimates. The 2020 emissions data are verified by Deloitte Tohmatsu Sustainability Co., Ltd.

LEED certified locations
Some of our locations are recognized by the U.S. Green Building Council (USGBC) as a LEED (Leadership in Energy and Environmental Design) Certified building. Our regional EMEA headquarters received both a LEED certificate at Gold level and a WELL certificate – the world's first architectural benchmark focused exclusively on human health and well-being to improve sustainability.

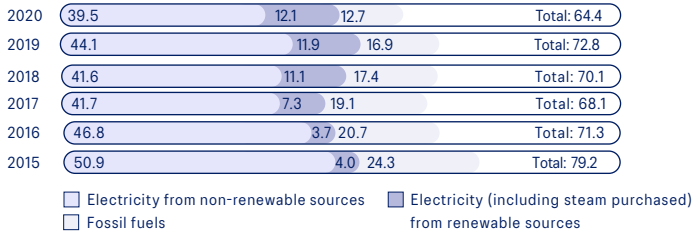
In March 2020, our Byhalia, Mississippi distribution center was recognized as a LEED® Certified building. ASICS' Byhalia facility is ASICS' first distribution center to earn certification in the U.S. The certification is a culmination of a series of incremental actions, including:

- ENERGY STAR Building Certification – earned every year since 2014.
- A 1.0-megawatt rooftop solar system – installed in 2018, it produces enough renewable energy to power 25% of the entire facility annually.
- Eco-Friendly Building Features – including smart sensors, LED lights with motion sensors and water efficient fixtures.
- Zero Waste Program – including an efficient cardboard recycling program that ensures 99% of the incoming boxes are recycled or reused.

Renewable energy
Renewable energy is one of the keys to shift to netzero society. Our target is to switch to 100% renewable electricity in our business facilities by 2030. In 2020, we joined RE100, the global environmental initiative composed of member companies committed to relying solely on renewable energy for their electricity needs in business activities. We continued to increase our use of renewable electricity in key regions.

In 2020, the percentage of ASICS' electricity from renewable sources increased to 23.5%. In EMEA, approximately 7,500 MWh of purchased electricity was from renewable sources. In Japan, five locations are sourcing renewable energy, including our headquarters and Institute of Sport Science, which uses 100% renewable energy.

Energy Volume by Type (GWh)



The data applies to ASICS Group locations, including offices, retail locations, distribution centers and wholly owned factories globally. Company/lease car impacts are also included.

The following formula is used when the amount of energy consumption is not available for any sites:

(energy consumption per square meter estimated for each type of site) **x** *(area of site)* **x** *(conversion factor from each unit to GWh).*

The 2019 data is restated due to updated data and improved estimates. The 2020 total energy volume is verified by Deloitte Tohmatsu Sustainability Co., Ltd.

2020 TARGET

5% absolute CO_2 emissions reduction from direct operations (Scope 1 & 2, 2015 baseline)

2020 RESULT

CO_2 emissions decreased 25.0% (compared to 2015 baseline)

23.5% of electricity from renewable sources

2030 TARGET

63% reduction in absolute CO_2 emissions from our direct operation by 2030 (2015 baseline)

100% renewable electricity used in our business facilities by 2030

ACTION PLAN FORWARD

Actively switch to renewable energy where possible.

Reducing Scope 3 CO_2 emissions

More than 70% of the overall greenhouse gas impact related to our products occurs during manufacturing, material procurement, and end-of-life management. Our target is to reduce our indirect (Scope 3) CO_2 emissions from purchased goods and services and end-of-life treatment of sold products by 63% by 2030 (2015 base year). In 2020, we achieved a reduction of 30.8% due to the impact of COVID-19 and through switching to lower-emission materials such as recycled polyester. We continued to work with our main footwear factories to ensure our goals are aligned.

We will also continue to measure our Scope 3 CO_2 emissions across our global operations to assess the impact of changes in our business operations.

For more details about how we are shifting to materials with lower impacts, see page 30.

For more about how we are reducing carbon emissions in our supply chain, see pages 43.

Scope 3 CO_2 Emissions 2020

SCOPE 3 CATEGORY	CO_2 TONS	%	SCOPE
1. Purchased goods and services	492,022	83.5	Global Footwear Manufacturing CO_2 Data (Tier 1), and ASICS Group companies' purchases of footwear material, apparel, equipment, marketing and sales (Calculation method[1])
2. Capital goods	12,647	2.1	ASICS Group companies
3. Fuel-and-energy-related activities	871	0.1	ASICS Group companies
4. Upstream transportation and distribution	38,778	6.6	Category 4 includes air and sea freight of footwear related logistics, air freight of apparel related logistics for Japan, rail and road freight of 'Port to DC' in Europe, US and Japan, and road freight of 'DC to customers' in Japan.
5. Waste generated in operations	45	0.01	ASICS Group companies
6. Business travel	1,072	0.2	ASICS Group companies
7. Employee commuting	388	0.1	ASICS Group companies in Japan
8. Upstream leased assets	-	-	Not assessed
9. Downstream transporation and distribution	5,889	1.0	ASICS Group companies
10. Processing of sold products	-	-	Not assessed
11. Use of sold products	12,035	2.0	ASICS Group companies
12. End-of-life-treatment of sold products	25,632	4.3	ASICS Group companies
13. Downstream leased assets	-	-	Not assessed
14. Franchises	10	0.002	ASICS Group companies in Japan
15. Investments	-	-	Not assessed
Total	**589,390**	**100**	

The Category 1 (Purchased goods and services) CO_2 emissions data of Scope 3 are verified by Deloitte Tohmatsu Sustainability Co., Ltd.

[1]Calculation methods:
Category 1 Footwear Tier 1:
*(energy consumptions at suppliers) **X** (percentage of ASICS production at suppliers) **X** (emission factor of each energy type)*
Footwear material:
*(production volume) **X** (emission factor of material from the past LCA study)*
Apparel Tier 1:
*(production volume) **X** (emission factor of Tier 1 from the past LCA study)*
Apparel material:
*(production volume) **X** (emission factor of material from the past LCA study)*
Equipment, marketing and sales:
*(price of purchased goods and services) **X** (emission factor of purchased goods and services[2])*

[2]Calculation is made as per inter-industry relations table based emission factors of Emission factors database for greenhouse gas emissions accounting throughout the supply chain (ver.2.2 as of March, 2015) published by Japanese Ministry of the Environment.

Photo by Martin Dambolodt from Pexels

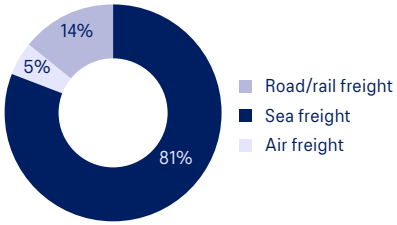
Reducing greenhouse gas emissions in transportation
Transporting products from factories to market is the second biggest contributor to our overall carbon footprint, accounting for about 7% of our total greenhouse gas emissions. Since 2013, we have been working to reduce the carbon footprint of our distribution network through consolidation and by improving its efficiency. This includes switching to more energy-efficient forms of transport, such as ships and trains.

In Japan, we have improved the efficiency of our logistics by developing a system that makes empty imported containers available to other companies for use as export containers at a number of distribution terminals. We also ship from our own factory in Japan directly to overseas subsidiaries, rather than via distribution centers in each region.

Globally, we ask our partner shipping companies to use ships assessed using the World Ports Sustainability Program's Environmental Ship Index (ESI). The ESI evaluates the amount of nitrogen oxide (NOx) and sulfur oxide (SOx) emitted by a ship and includes a reporting scheme on the greenhouse gas emissions of the ship. We will continue to work with our logistics providers to make our distribution network more efficient globally.

We are also switching to more sustainable packaging, as well as improving how we use containers in our logistics to reduce the total number of trips needed to deliver goods in the value chain.

CO_2 transporatation (tons)



Road and rail freight include data of 'port to DC' in the US, Europe and Japan, and 'DC to customers' in Japan. Sea freight data is from the footwear business. Air freight data is from the footwear business globally and the apparel business in Japan. The emissions factors provided by the GHG Protocol are used.

Sustainable Retail

We continue to develop our retail locations, adopting new materials and technologies to improve their sustainability while providing our consumers with the best experience and service. Since 2016, we have been introducing a new design concept for our ASICS stores. This involves using more sustainable materials, such as FSC certified, recycled and recyclable materials, and installing energy-efficient lighting, such as LED lighting. It also involves providing more space for community activities and encouraging people to move, in line with the spirit of our brand. In addition, we continued to switch energy contracts to renewable electricity as part of our commitment to reduce carbon emissions related to our operations.

We have been switching to more sustainable paper shopping bags in all directly managed stores. In Japan, we encourage consumers to bring their own reusable bags and reward people who decline the use of paper shopping bags with 'Thanks points' through the OneASICS membership platform.

In 2020, we also introduced a new, more sustainable shoebox. The box uses water-based rather than oil-based ink, and requires around 50% less ink than our previous boxes. The box itself also contributes to a lower negative environmental impact by using around 10% less cardboard. All this means the box is less carbon-intensive to produce, saving around 1,200 tons in CO_2 emissions per year in total.

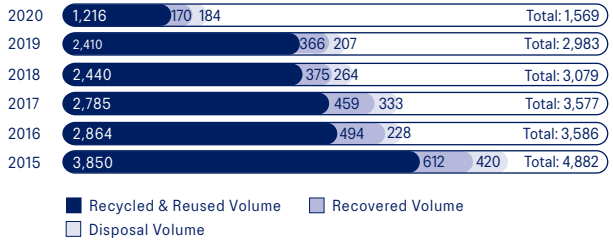
Resource Efficiency Improvement

The materials and other resources we use to make our products are valuable, and we are committed to using them as efficiently as possible. We have set a target to recover or recycle more than 98% of the waste in our direct operations by 2020, which means reducing the waste being disposed of in landfill. To achieve this, we are making smart material and design choices to ensure that more of our materials can be reused.

In 2020, we decreased the total volume of waste we produced by 47.4% compared to 2019. The amount of waste disposed to landfill decreased by 11.1%. We diverted 88.3% of our waste from landfill.

We will continue to strive to achieve our 2023 target by focusing on the four sites that are responsible for over three-quarters of all the waste that we currently send to landfill. These sites include two distribution centers and two factories. Improvements are being made to waste data management, and the sites are finding new recycling facilities for waste. One of the distribution centers operates under the Zero Waste principles to enhance operations and reduce or eliminate waste creation. The cardboard recycling program is very efficient and ensures that 99% of the incoming boxes are either recycled in close partnership with our local cardboard supplier or reused to ship merchandise to our ASICS retail locations. We will expand these principles to other key sites.

Waste Volume (metric tons)



2020: 16 companies, 26 locations, covering 62% of operations (FTE basis)
2019: 17 companies, 33 locations, covering 65% of operations (FTE basis)
2018: 20 companies, 33 locations, covering 68% of operations (FTE basis)
2017: 20 companies, 40 locations, covering 69% of operations (FTE basis)
2016: 20 companies, 42 locations, covering 75% of operations (FTE basis)
2015: 17 companies, 43 locations, covering 75% of operations (FTE basis)

2020 TARGET	2020 RESULT	2023 TARGET	ACTION PLAN FORWARD
98% waste recovered or recycled at our direct operations.*	Diverted 88.3% of our waste from landfill.	98% waste recovered or recycled at our direct operations.*	Will continue to work with the key locations to reduce the waste going to landfill and improve recycling rates further.
** Sites that are able to measure and report their waste.*		** Sites that are able to measure and report their waste.*	

Reducing Our Water Use

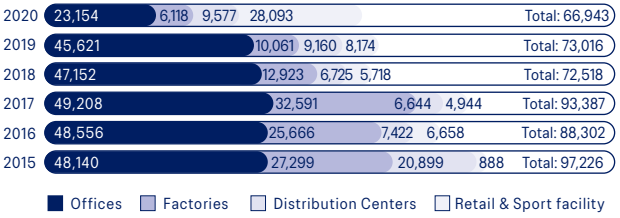
Water is one of life's most precious resources, and it is essential to our manufacturing processes. To ensure a sustainable supply of water in the communities in which we operate, we are committed to using water as efficiently as possible, and we aim to reduce our water consumption every year.

In 2020, we used 8.3% less water than in the previous reporting year due to offices and retail stores closing because of COVID-19. However, our new sports facility uses a lot of water for the swimming pool and showers.

In order to help our operations reduce their water use further, we will share best practices and focus on our most water-intensive operations for efficiency improvements. ASICS America HQ in Irvine uses five waterless urinals, with estimated savings of 150,000 liters of water per unit per year.

As well as tracking the volume of water used in our own operations, we have also investigated the source of the water. This gives us a more detailed understanding of the way our water use impacts the local environment. As expected, we were able to confirm that we are using water from municipal water utilities in all our operations. Water provided by municipal utilities is estimated to be well managed. It has a lower risk and impact on the environment than water from a nearby river, lake, or groundwater. In one of our locations in Germany, we are saving water by using rainwater for sanitary purposes. We are exploring whether this can be applied in other locations to decrease our water use.

Water volume used in our operations (m³)



2020: 28 companies, 82 locations, covering 75% of operations (FTE basis)
2019: 30 companies, 92 locations, covering 79% of operations (FTE basis)
2018: 32 companies, 85 locations, covering 82% of operations (FTE basis)
2017: 31 companies, 85 locations, covering 80% of operations (FTE basis)
2016: 26 companies, 81 locations, covering 80% of operations (FTE basis)
2015: 30 companies, 60 locations, covering 55% of operations (FTE basis)

Managing the Environmental Impacts of Manufacturing

Supply chain manufacturing accounts for more than 65% of our overall environmental impacts. Our product Life Cycle Assessment (LCA) research shows us that most of the environmental impacts related to footwear are associated with manufacturing processes. For apparel, the impacts are associated with manufacturing processes, and washing while the products are in use. We are committed to using our influence within our supply chain to drive reduce these impacts.
We seek to source from suppliers that share our commitment to operating in an environmentally responsible manner. To achieve our GHG emissions targets by 2030, we will actively work with our suppliers to reduce energy use in Tier 1 supplier factories by 50% compared to a 2015 baseline. We will also help them to switch to renewable energy where possible and aim for 85% renewable electricity used in our Tier 1 supplier factories.

We continue to build on our collaboration with our partner factories to improve our collective environmental performance. In 2020, environmental sustainability was further integrated into the factory rating, which is implemented by ASICS' Footwear Manufacturing Division every year to reward the suppliers that are performing strongly on their environmental efforts. The Higg FEM score is used to rate the performance, and we are identifying and sharing points of improvement at the factories. We also shared the environmental sustainability guidance with partner factories and worked with them on exploring the possibilities of renewable energy.

Higg FEM Analysis

More than 15% of our supply chain environmental impact is attributed to Tier 1 factories and even more impact to Tier 2 and upper stream suppliers. We are asking our strategic Tier 1 factories and Tier 2 suppliers to share their environmental performance data using the Sustainable Apparel Coalition's Higg Facility Environmental Module (SAC's Higg FEM). The Higg FEM assessment helps us understand how suppliers are managing their environmental performance, as well as their overall sustainability strategy.

This information will allow us to:
- Track our indirect environmental impact
- Understand suppliers' sustainability strategy and engage with them
- Focus on working with factories that have a lower environmental impact
- Communicate the environmental impact of our products in more detail to our consumers

We believe that the SAC's Higg FEM is the most efficient industry tool for this purpose. Suppliers only have to fill out the module once per year and share it with all the brands they work with, instead of answering separate questionnaires for each brand. In addition to the SAC's Higg FEM, we also asked suppliers to provide us with performance data using the SAC Higg Facility Social Labor Module (Higg FSLM), a similar tool for tracking and measuring the social performance of factories. We will keep using the Higg FSLM to monitor social performance in our supply chain.

Reducing the Environmental Impact of Tier 1 Suppliers
We work closely with our Tier 1 suppliers to help them reduce their impacts by improving our product designs and manufacturing processes. We also encourage our suppliers to implement best practice environmental management systems.

In 2020, CO_2 emissions per pair of shoes manufactured in our footwear Tier 1 suppliers decreased by 41.8%, compared to the 2015 baseline. We have phased out the coal use in our Tier 1 suppliers. Water consumption per pair of shoes decreased by 20.2% and waste emissions decreased by 8.6%.

Environmental performance of footwear Tier 1 suppliers

CATEGORY	UNIT	2015	2016	2017	2018	2019	2020
CO_2 emissions	kg/pair	2.45	2.17	2.27	2.08	1.77	1.42
Water	m^3/pair	0.034	0.030	0.030	0.028	0.031	0.027
Waste	kg/pair	0.02	0.03	0.03	0.03	0.03	0.019
Recycled or recovered waste	tons	12,606	9,324	3,658	4,980	5,352	4.917

The data in this table is based on 16 factories in China, Vietnam, Indonesia and Cambodia, which together produce over 95% of all our footwear.

Water risk mapping in the supply chain*

** The analysis is based on the Higg FEM that facilities agreed to share with us. Around 59% of those are verified data, but the remaining 41% is self-assessment data. Last year, the verification ratio was about 29%, and we are increasing the number of verified data in the coming years to improve accuracy.*

Our industry uses a significant amount of fresh water globally in its material sourcing and manufacturing activities. Many of the factories we work with are located in regions affected by water scarcity, with limited water infrastructure and regulations on water use and pollution. It is therefore important that we understand the water risks in these areas, as well as opportunities to improve water sustainability.

Since 2017 we have been carrying out water risk assessments focused on footwear and apparel Tier 1 and 2 suppliers. In 2020, we updated this assessment based on more recent information gathered from the Higg FEM assessment. Many of our suppliers continue to have good water management practices and are limited water users.

For the facilities identified as heavy water users, we continuously found that most have an effective water management system in place, including targets and strategies for improvement. We will continue to follow up with the facilities as we strengthen our engagement with suppliers.

2020 TARGET	2020 RESULT	TARGETS FOR THE FUTURE	ACTION PLAN ONWARD
10% reduction of CO_2 emissions per item related to footwear manufacturing (Scope 3, 2015 baseline)	CO_2 emissions decreased by 41.8% for every pair of shoes manufactured (compared to 2015 baseline year)	63% reduction in absolute CO_2 emissions from our supply chain** by 2030 (2015 baseline)	Actively switch to recycled and lower emissions materials.
	30.8% reduction in absolute CO_2 emissions from our supply chain**	50% reduction in the amount of energy used by our Tier 1 supplier factories to manufacture our products by 2030 (2015 baseline)	With partner factories, continue to explore renewable energy sourcing possibilities and conduct an energy efficiency program.
90% Tier 1 strategic partner factories improve their SAC Higg Facility Environmental Module (Higg FEM) Score compared to baseline.	69.2% of Tier 1 strategic partner factories from which we received Higg FEM modules improved their Higg FEM 2019 score compared to baseline. (baseline: Higg FEM 2018)	85% renewable electricity used in our Tier 1 supplier factories to manufacture our product by 2030	Work within industrial initiative (Fashion Charter) to phase out carbon intensive energy source and enable renewable energy sourcing at our partner factories.
90% of all nominated Tier 2 suppliers improve their SAC Higg FEM Score compared to baseline.	50% of participating Tier 2 suppliers improved their Higg FEM 2019 score compared to baseline. (baseline: Higg FEM 2018)	90% Tier 1 strategic partner factories improve their SAC Higg Facility Environmental Module (Higg FEM) Score compared to baseline.	Enhance communication with partner factories and 90% of them improve their Higg FEM score compared to the 2019 baseline.
10% reduction of water and waste impact per item produced by Tier 1 footwear factories. (2015 baseline)	Water consumption decreased by 20.2% and waste emissions decreased by 8.6% for every pair of shoes manufactured (2015 baseline)	90% of all nominated Tier 2 suppliers improve their SAC Higg FEM Score compared to baseline.	Enhance communication with the suppliers and 90% of them improve their Higg FEM 2020 score compared to the 2019 baseline.
		20% reduction of water and waste impact per item produced by Tier 1 footwear factories by 2023. (2015 baseline)	Continue to engage with Tier 1 footwear factories to achieve targets using Higg FEM analysis.

***Target scope is 'purchased goods and services' and 'end-of-life treatment of sold products'.*