



**LUFTHANSA GROUP**

**Sustainability 2024**

# FACT SHEET



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# About this fact sheet

Sustainable and responsible corporate conduct is integral to the Lufthansa Group's strategy. The Group is committed to creating value for customers, employees, and investors while fulfilling its responsibilities to the environment and society, and it conducts active ESG management.

This Fact Sheet provides a collection of the Lufthansa Group's most significant non-financial performance indicators for the 2024 financial year. These reflect its commitment to sustainable practices and responsible management, and aim to provide stakeholders with a clear and transparent view of the Group's sustainability efforts.

In addition, the [Lufthansa Group's non-financial declaration](#), integrated into the Lufthansa Group's annual report, provides extensive information on the Lufthansa Group's strategies, governance, management of key impacts, actions and targets as well as metrics related to the material ESG topics of the Lufthansa Group.





# At a glance

ENVIRONMENTAL DATA <sup>1,2</sup>		2024	2023
<b>Resource consumption</b>			
Fuel consumption <sup>1,3</sup>	tonnes	9,167,010	8,451,407
Fuel consumption, specific, all types of transport	g/tkm	262	265
Fuel consumption, specific, passenger transportation <sup>1,3</sup>	l/100pkm	3.47	3.52
Fuel consumption, specific, freight transportation <sup>1,3,4</sup>	l/tkm	0.274	0.272
<b>Emissions</b>			
CO <sub>2</sub> emissions <sup>1,3</sup>	tonnes	28,967,753	
Scope 1 <sup>6</sup>	tonnes CO <sub>2</sub> -eq	29,159,239	
Scope 2 <sup>7</sup>	tonnes CO <sub>2</sub> -eq	48,728	
Scope 3 <sup>7</sup>	tonnes CO <sub>2</sub> -eq	13,734,041	
CO <sub>2</sub> emissions, specific, passenger transportation <sup>1</sup>	kg/100pkm	8.75	
CO <sub>2</sub> emissions, specific, freight transportation <sup>1</sup>	kg/tkm	0.69	
Reduced fossil fuel CO <sub>2</sub> volume through the use of SAF <sup>5</sup>	tonnes	71,952	
CO <sub>2</sub> volume offset through projects, total	tonnes	606,007	
<b>Energy</b>			
Ratio of fossil aircraft fuel/sustainable aviation fuel	percent	0.2	
Percentage of total energy consumption, fossil sources	percent	99.6	
Percentage of total energy consumption, renewable sources	percent	0.4	
Percentage of total energy consumption, nuclear sources	percent	0.0	

TRAFFIC DATA		Fact Sheet <sup>1,2</sup>			Annual Report <sup>10,11</sup>		
		2024	2023	Diff PY	2024	2023	Diff PY
Flights <sup>8</sup>		907,837	874,431	3.8%	991,752	936,079	5.9%
Passengers <sup>9</sup>	thousand	121,487	114,405	6.2%	131,300	122,535	7.2%
Seat kilometers offered, SKO	million	315,888	291,138	8.5%	326,176	300,582	8.5%
Freight tonne-kilometers offered, FTKO	million	15,778	14,072	12.1%	17,119	15,497	10.5%
Passenger kilometers transported, PKT <sup>9</sup>	million	266,369	244,912	8.8%	271,038	249,269	8.7%
Freight tonne-kilometers transported, FTKT	million	8,220	7,282	12.9%	9,957	8,735	14.0%
Passenger tonne-kilometers <sup>9</sup>	million	26,804	24,644	8.8%			
Tonne-kilometers transported, TKT	million	35,024	31,926	9.7%			

<sup>1</sup> The following companies are included for the 2024 reporting year: Lufthansa (including Lufthansa CityLine, Lufthansa City Airlines, Discover Airlines, and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings, Brussels Airlines, and Lufthansa Cargo. Other flights and services carried out by third parties are not included, as their performance is beyond Lufthansa Group's control (see table "Fuel consumption", p. 11). <sup>2</sup> Types of flight service considered: all scheduled and charter flights (excluding ground vehicles). <sup>3</sup> Actual fuel consumption/carbon dioxide emissions from flight operations (all scheduled and charter flights) based on all flight events under the respective operating flight number.

Consumption/carbon dioxide emissions are recorded from gate to gate, i.e. including taxiing on the ground and holding patterns, as well as flight detours. <sup>4</sup> Based on freight tonne-kilometers transported in both cargo and passenger aircraft. <sup>5</sup> Of this amount, 63,943 tons were accounted for by direct savings in the combustion of SAF (Scope 1) and 8,009 tons by savings in the upstream supply chain (production and transport, Scope 3). Both figures refer to the comparison with the use of fossil kerosene. <sup>6</sup> Scope 1 for 2024 reporting year audited with high assurance (see p. 18). <sup>7</sup> Scope 2 and 3 audited with limited assurance (see p. 18). <sup>8</sup> Legs (operational perspective); Annual Report: routes (customer perspective). A route may

PERSONNEL DATA		2024	2023
<b>Employees as of Dec 31, 2024</b>		101,422	
Female employees		46,229	
Male employees		55,193	
Average age		42.1	42.6
Part-time ratio men <sup>12</sup>	percent	21.1	20.6
Part-time ratio women <sup>12</sup>	percent	50.7	51.2
Women on family-related leave <sup>13</sup>		1,789	
Men on family-related leave <sup>13</sup>		842	
Share of women in management <sup>14</sup>	percent	25.3	22.3
Women on executive board <sup>15</sup>	percent	20	16.7
Women on supervisory board <sup>15</sup>	percent	40	35.0
Absolute injuries		1,357	
Turnover rate		6.4	
Number of nationalities		163	162
Human rights incidents		55	
Gender pay gap <sup>16</sup>	percent	27	
Remuneration ratio		1:86	



Unless otherwise stated, the values communicated in this Fact Sheet are based on the scope of consolidation for reporting under the ESRS. It includes 61 legal entities, representing 99.7% of the Lufthansa Group workforce. Due to the adjustment in the reporting scope, and to a change in the methods of calculating CO<sub>2</sub> emissions, the Lufthansa Group partly does not report previous years' values, since values would not be comparable.

comprise several legs, e.g. stopovers. <sup>9</sup> Based on all passengers on board. <sup>10</sup> Companies included as in footnote 2, but including third-party services, as these contribute to the Group's result. <sup>11</sup> Previous year's figures adjusted. <sup>12</sup> Part-time including partial retirement (also leisure phase). <sup>13</sup> Including parental leave; previous years' values only include parental leave. <sup>14</sup> Management includes all senior managers. <sup>15</sup> Deutsche Lufthansa AG. <sup>16</sup> The gender pay gap is an unadjusted figure based on total remuneration across all roles and locations, as required by ESRS and does not reflect structural workforce differences – such as the high proportion of women among flight attendants and men among pilots.

# Strategy

## Positioning as leading European airline group

The Lufthansa Group is the leading European airline group and one of the largest airline groups worldwide. In this role, the Lufthansa Group aims to play its part in actively shaping the global airline market. It strives to connect people, cultures and economies in a sustainable way. In doing so, it aspires to set standards in terms of customer-friendliness and sustainability. The Lufthansa Group uses the potential of innovation and digitalisation to develop customer-focused products and

increase efficiency. Overarching functional processes that enable synergies and economies of scale are supported by corporate responsibility and identity, which are put into practice locally. Operational stability and reliability in all areas and a strict focus on costs are firmly established within the DNA of the Lufthansa Group. The safety of flight operations is always of the highest priority.

## GUIDING PRINCIPLES OF THE LUFTHANSA GROUP



## The Lufthansa Group to focus increasingly on sustainability and social responsibility

Responsibility is the foundation of business activities in the Lufthansa Group. The Lufthansa Group aspires to lead the aviation sector with high standards in this area as well. It is therefore continuously expanding its environmental commitment, is dedicated to social issues, and treats its employees and partners in the value chain responsibly and fairly.

Given the central importance of sustainability, this topic is represented at the Executive Board level. Moreover, implementation of the Group's sustainability strategy is accounted for in the remuneration of the Executive Board members and the management levels.



991,752 **flights<sup>1</sup>**



>300 **destinations<sup>1</sup>**



131.1 million **passengers<sup>1</sup>**



735 **aircraft<sup>1</sup>**  
(as of Dec 31, 2024)



5 **hubs**



101,709 **employees<sup>1</sup>**  
(as of Dec 31, 2024)



276 **companies<sup>1</sup>**  
(fully consolidated)

<sup>1</sup> Data basis annual report 2024

# Values and guidelines

The Lufthansa Group is committed to the [ten principles of the UN Global Compact](#) for sustainable and responsible corporate governance. In addition, it supports the 17 global Sustainable Development Goals (SDGs) of the [Agenda 2030](#), as adopted by the UN member states in 2015. In order to contribute towards achieving these goals, the Lufthansa Group concentrates on the SDGs where it can reduce its negative impact and increase its positive effect based on its business model. A detailed overview of the Group's contributions can be found in the annex in the annual report. [SDG Index](#)

In its [Code of Conduct](#), which is binding for all bodies, senior executives, and employees, the Lufthansa Group documents its values, principles, and standards of business conduct. By providing a framework for responsible and legal business con-









duct, the Code of Conduct serves as a basis to support employees in making decisions that align with the Company's principles and values. The key principles of the Code of Conduct include, among others, taking responsibility for society and the environment and acting with business integrity.

Building on this document, the Lufthansa Group also has a [Supplier Code of Conduct](#), which specifically lays out the Group's position: It expects suppliers to abide by the principles outlined in the code as a key aspect of their business relationship. It focuses on the three areas of environment, social and governance, and is intended to ensure that the Lufthansa Group's suppliers comply with the standards it sets out in the Supplier Code of Conduct and to encourage them to support the establishment of responsible and sustainable behaviors in the supply

chain. The principles laid down in the Supplier Code of Conduct not only act as the basis for responsible conduct and fair competition, but also help identify and avoid legal and reputational risks at an early stage.

In addition, the Lufthansa Group's Executive Board has approved a [Policy Statement on respect for human and environmental rights](#) for its own business division and along the supply chain. It details the human rights strategy to comply with its due diligence obligations, and risk management system. The Policy Statement also covers risk analysis, prioritized risks, and appropriate measures to prevent risks and address violations. It includes complaint options, documentation, and reporting obligations as part of its risk management system.

## SUSTAINABLE DEVELOPMENT GOALS (SDG) SUPPORTED BY THE LUFTHANSA GROUP

	<b>SDG 03:</b> Good Health and Well-Being		<b>SDG 04:</b> Quality Education		<b>SDG 07:</b> Affordable and Clean Energy		<b>SDG 08:</b> Decent Work and Economic Growth
	<b>SDG 09:</b> Industry, Innovation and Infrastructure		<b>SDG 10:</b> Reduced Inequalities		<b>SDG 12:</b> Responsible Consumption and Production		
	<b>SDG 13:</b> Climate Action		<b>SDG 16:</b> Peace, Justice and Strong Institutions		<b>SDG 17:</b> Partnerships for the Goals		

# The Lufthansa Group is committed to providing transparent and comprehensive sustainability reporting

**Transparent and comprehensive reporting on sustainability activities is a key priority for the Lufthansa Group, as it reflects the expectations and interests of the Group's stakeholders.**

In addition to publishing this Sustainability Fact Sheet, the Lufthansa Group provides a comprehensive overview of its sustainability commitment in the **non-financial declaration** of the Annual Report. Anticipating the transposition of the Corporate Sustainability Reporting Directive (CSRD) into German law, the Lufthansa Group has prepared its non-financial declaration for the 2024 financial year, for the first time, in accordance with CSRD and the corresponding European Sustainability Reporting Standards (ESRS) for financial year 2024. Also included is a statement on the applicability of the EU Taxonomy.

The Group also provides a detailed description of its carbon footprint in the context of its **CDP rating** and its **annual progress in the area of sustainable corporate governance along the ten principles of the UN Global Compact**. More environmental aspects are summarized in the **TCFD Index**. Additionally, a **SASB report** can be found.

**All reports are published under**

➤ [lufthansagroup.com/en/responsibility/reports](https://lufthansagroup.com/en/responsibility/reports)

**ESG rating agencies continue to assess the Company's sustainability efforts as above average in the reporting year 2024.**

Institutional investors are increasingly integrating ESG aspects into their investment decisions. The ESG performance of a Company is therefore externally rated on the basis of published

information, taking into account numerous criteria, such as Company's values, risk management, non-financial targets, and the measures it adopts.

## ESG RATINGS & INDICES

As of Dec 31, 2024



# Material ESG Topics

For many years the Lufthansa Group has had an annual analysis process in place to identify its material ESG topics. In 2024 this process was adapted to meet the requirements of the CSRD and ESRS. It requires consideration of a double materiality, which addresses the ESG impacts that an organization has on people and the environment (inside-out view), and risks and opportunities for the organization and its financial performance (outside-in view). This double materiality analysis was carried out by the Lufthansa Group for the first time in 2024.

It is based on the Lufthansa Group's value chain, including a thorough review of its core business activities, business relationships and locations. Impacts, risks and opportunities were identified along the value chain and assessed to define the key sustainability issues. In addition, the results of a wide-ranging stakeholder survey conducted in 2023 were included in the assessment.

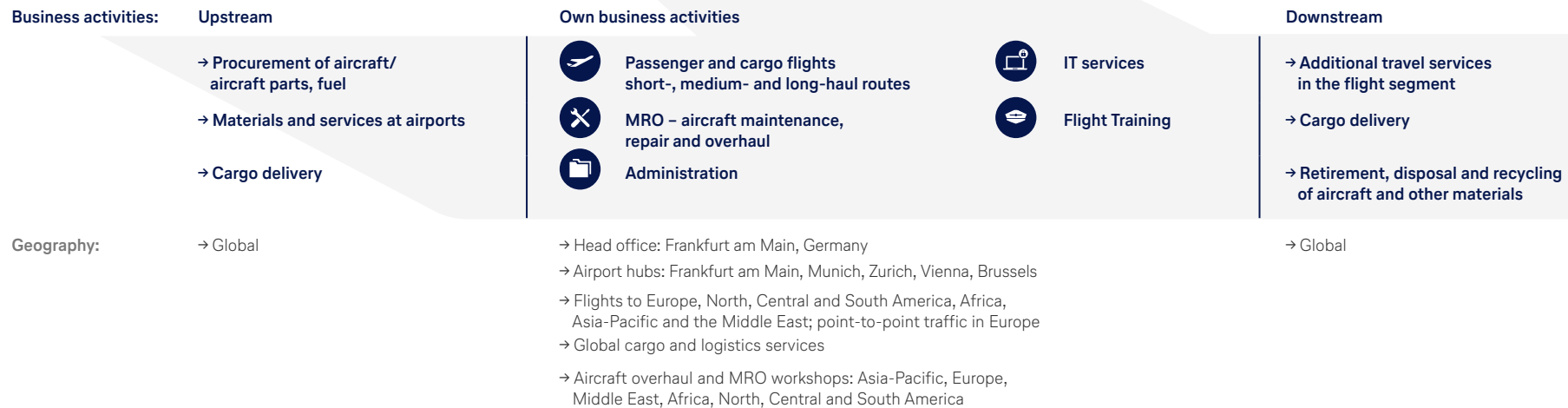


## THE LUFTHANSA GROUP VALUE CHAIN

**Business segments:** Passenger Airlines, Freight and Logistics, MRO – aircraft maintenance, repair and overhaul

**Additional Businesses and Group Functions:** IT services, Flight training, Administration

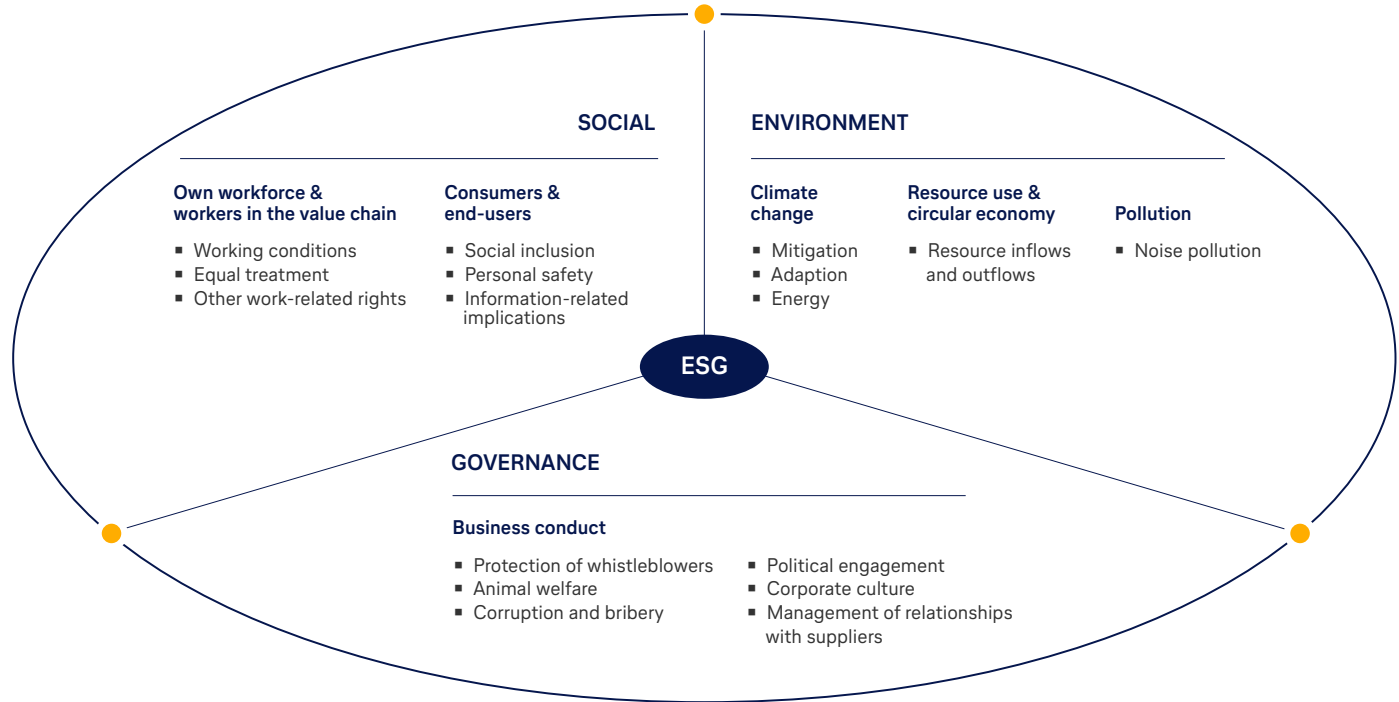
**Business relationships:** Private and business travellers, business partners, corporate customers, employees, trainees at flight schools, external airlines, suppliers, airport services/system partners, shipping companies, MRO service providers, waste disposal companies and resellers



# Material ESG Topics

The financial risks and opportunities analyzed based on core business activities, as well as the impacts on people and the environment, taking into consideration the results of stakeholder dialogue formats, continue to make the topics of climate change, noise pollution, and resource use relevant for the Lufthansa Group. The key issues here are the reduction of CO<sub>2</sub> emissions and aircraft noise through the operation of aircraft, as well as efficient use of finite resources. As an employer and business partner, a responsible approach to employees and along the entire value chain is of particular importance to the Lufthansa Group to strengthen the loyalty of existing employees and attract talent from outside the Company. The focus lies on sustainable, fair and safe working conditions, enhancing diversity and equal opportunities, and ensuring compliance with human rights standards. With regards to responsible business conduct, in order to strengthen the confidence of employees, customers, investors, and business partners in the long term, the Lufthansa Group places an emphasis on responsible business conduct and management based on values, integrity, and a sense of responsibility.

## MATERIAL ESG TOPICS FOR THE LUFTHANSA GROUP



## STAKEHOLDERS OF THE LUFTHANSA GROUP



**Customers and end-users**  
Consumers including business customers



**Capital market stakeholders**  
Investors, shareholders, lenders and other creditors



**Politics, authorities, governments and legislation**



**Science, research and education**



**Society**  
General public, residents, vulnerable groups, social networks, NGOs/associations



**Nature**



**Analysts and rating agencies**



**Employees and representatives**



**Suppliers and contracting partners**



# Climate action goals

## Ambitious Lufthansa Group climate action goals

The Lufthansa Group has set ambitious climate protection goals. It aims to halve its net carbon emissions from flight operations by 2030 compared to 2019, and to achieve carbon neutrality by 2050.

As an additional goal, the Lufthansa Group aims to become carbon neutral within its mobility on the ground in its home markets by 2030.

The Lufthansa Group has joined the Science Based Targets initiative (SBTi) and is following a clearly defined CO<sub>2</sub> reduction path. Lufthansa Group's target to achieve a 30.6% reduction in CO<sub>2</sub> intensity in 2030 compared to 2019 was successfully validated in 2022 by SBTi as the first European airline group and the second worldwide.

The Lufthansa Group improved its performance by 3.8% compared with 2019 in terms of the core KPI of the Science Based Targets initiative (measured in grams of CO<sub>2</sub> per revenue tonne-kilometer).

## THE LUFTHANSA GROUP'S TOOLS FOR ACHIEVING ITS CLIMATE GOALS



### Fleet modernization

More modern and fuel-efficient aircraft are the most significant lever for reducing CO<sub>2</sub> emissions in this decade.



### Efficiency in flight operations

Tools used every day to reduce carbon emissions include intelligent route planning, modern approach procedures, and the latest technologies.



### Sustainable aviation fuels

The key to making flying more climate friendly in the future is to increase the use of sustainable fuels.



### Alternative transport to hubs

The expansion and interconnection of air, rail and bus services makes it possible to reduce the number of short-haul flights and offer alternative modes of travel.



### Offsetting

High-quality, certified offset projects that promote climate change mitigation worldwide are complemented by CORSIA, the international offset instrument for carbon-neutral growth in air transport.

# Update on tools for achieving climate goals – 2024 highlights

## Fleet modernization

- **18 new entry aircraft** including Airbus A320neos, A321neos, A350-900s and Boeing 787-9s, all powered by state-of-the-art engines
- **4 aircraft removed** from the Group fleet

The Lufthansa Group expects delivery of approximately 30 state-of-the-art aircraft in 2025, including the Airbus A320neo, A321neo, and A350-900, and the Boeing 787-9 models. The order book comprises around 240 aircraft featuring the latest technology.



Fleet modernization also serves as the highest priority measure for reducing aircraft noise at source. **99.6% of the operational Group fleet meet aircraft noise standard in 2024** (ICAO in Chapter 4 of the Chicago Convention).

## Sustainable aviation fuel

**71,952 tonnes fossil CO<sub>2</sub> reduced** in the Lufthansa Group through the use of SAF in 2024

**Lufthansa Group's Green Fares product offers expanded on intercontinental routes as well** since December 2024 – in which 10% of flight-related CO<sub>2</sub> emissions are reduced by using SAF and 90% are compensated via a contribution to high-quality climate protection projects – on continental routes the ratio is 20% SAF and 80% compensation.

- Green Fares customer take rate in 2024: **4%** on continental routes and **1.5%** on intercontinental routes (since Dec 2024)
- **1.3 million customers** with Green Fares welcomed on board
- **143 thousand tonnes** of fossil CO<sub>2</sub> reduced/compensated by the use of SAF or offsetting, thereof **28 thousand tonnes** of fossil CO<sub>2</sub> saved through using SAF

## Intermodal transport

**Around 750** alternative connections from Lufthansa Group hubs were offered each day, to open up additional potential to reduce, in particular, the number of very short flights. More than **1.1 million** guests took advantage of this opportunity in 2024.



## Offsetting

**606 thousand tonnes** CO<sub>2</sub> volume offset through climate project with high standards of which

**531 thousand tonnes** by customers and **75 thousand tonnes** by Lufthansa Group for own business trips<sup>1</sup>

## Efficiency in flight operations

**37 thousand tonnes** of CO<sub>2</sub> reduction and **around 12 thousand tonnes** of kerosene reduction through **91 fuel-saving projects**, such as AeroSHARK, underway across the Group

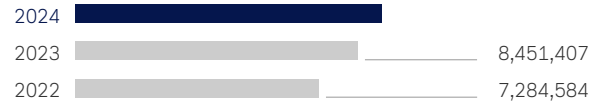
This is equivalent to approximately 142 return flights between Munich and New York with an Airbus A350-900 aircraft.

<sup>1)</sup> Excluding contracted leases

# Absolute fuel consumption

## FUEL CONSUMPTION<sup>1,2</sup>

in tonnes

**9,167,010**


## FUEL CONSUMPTION 2024<sup>1</sup>

in tonnes

	Passengers	Cargo	Total	Share
<b>Regular flights<sup>2</sup></b>				
Lufthansa Airlines	4,376,065	1,308,162	5,684,227	58.9%
SWISS	1,270,160	367,051	1,637,211	17.0%
Austrian Airlines	640,948	64,372	705,319	7.3%
Eurowings	664,705	637	665,341	6.9%
Brussels Airlines	422,315	52,596	474,911	4.9%
			<b>9,167,010</b>	<b>94.9%</b>
Other flights <sup>3</sup>			31,007	0.3%
<b>Sum</b>			<b>9,198,017</b>	<b>95.2%</b>
Third parties <sup>4, 5</sup>	213,832	245,009	458,840	4.8%
<b>All flights</b>			<b>9,656,858</b>	<b>100.0%</b>

Demand for both passenger and freight transportation rose again significantly in the year 2024. This was reflected by an increase in capacity. The markedly positive development in demand compared to the previous year of 2023, combined with an increase

in capacity in the 2024 reporting year, resulted in correspondingly higher fuel consumption. The number of flights increased by 3.8%, transportation volumes increased by 9.7%, and kerosene consumption by 8.5%.



<sup>1)</sup> Actual fuel consumption in tonnes from flight operations based on all flight events under the respective operating flight number. Consumption/carbon dioxide emissions are recorded from gate to gate, i.e. including taxiing on the ground and holding patterns, as well as flight detours. <sup>2)</sup> The following companies are included for the 2024 reporting year: Lufthansa (including Lufthansa CityLine, Lufthansa City Airlines, Discover Airlines,

and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings, Brussels Airlines, and Lufthansa Cargo. Other flights (see footnote 3) and services carried out by third parties (see footnotes 4 and 5) are not included, as their performance is beyond Lufthansa Group's control. <sup>3)</sup> Ferry flights, special flights, test flights, training flights, aborted flights. <sup>4)</sup> Airlines that fall outside the scope of this fact sheet but that provide

services for Lufthansa, e.g. in the event of capacity bottlenecks. <sup>5)</sup> Excluding road feeder service and partial capacity chartered by Lufthansa Cargo, as no data on fuel consumption and emissions values are available for these services.

# Specific fuel consumption



## SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORTATION LUFTHANSA GROUP<sup>1, 2</sup>

in liters/100 passenger-kilometers (l/100 pkm)

**3.47**



## SPECIFIC FUEL CONSUMPTION CARGO TRANSPORT<sup>1, 2, 3</sup>

in liters/freight tonne-kilometer (l/tkm)

**0.274**



## SPECIFIC FUEL CONSUMPTION PASSENGER TRANSPORT IN COMPARISON<sup>1, 2</sup>

in liters/100 pkm

	2024	2023	Change in %
<b>Group fleet</b>	3.47	3.52	-1.4%
Lufthansa Airlines	3.55	3.59	-1.1%
SWISS	3.28	3.27	0.3%
Austrian Airlines	3.58	3.66	-2.2%
Eurowings	3.34	3.48	-4.2%
Brussels Airlines	3.42	3.54	-3.2%



<sup>1)</sup> Actual fuel consumption in liters from flight operations based on all flight events under the respective operating flight number. Consumption is recorded from gate to gate, i.e. including taxiing on the ground and holding patterns, as well as flight detours.

<sup>2)</sup> The following companies are included for the 2024 reporting year: Lufthansa (including Lufthansa CityLine, Lufthansa City Airlines, Discover Airlines, and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings, Brussels Airlines, and Lufthansa

Cargo. Other flights and services carried out by third parties are not included, as their performance is beyond Lufthansa Group's control (see "Fuel consumption", p. 11).

<sup>3)</sup> Based on freight tonne-kilometers transported in both cargo and passenger aircraft.



# Decoupling of fuel and transport

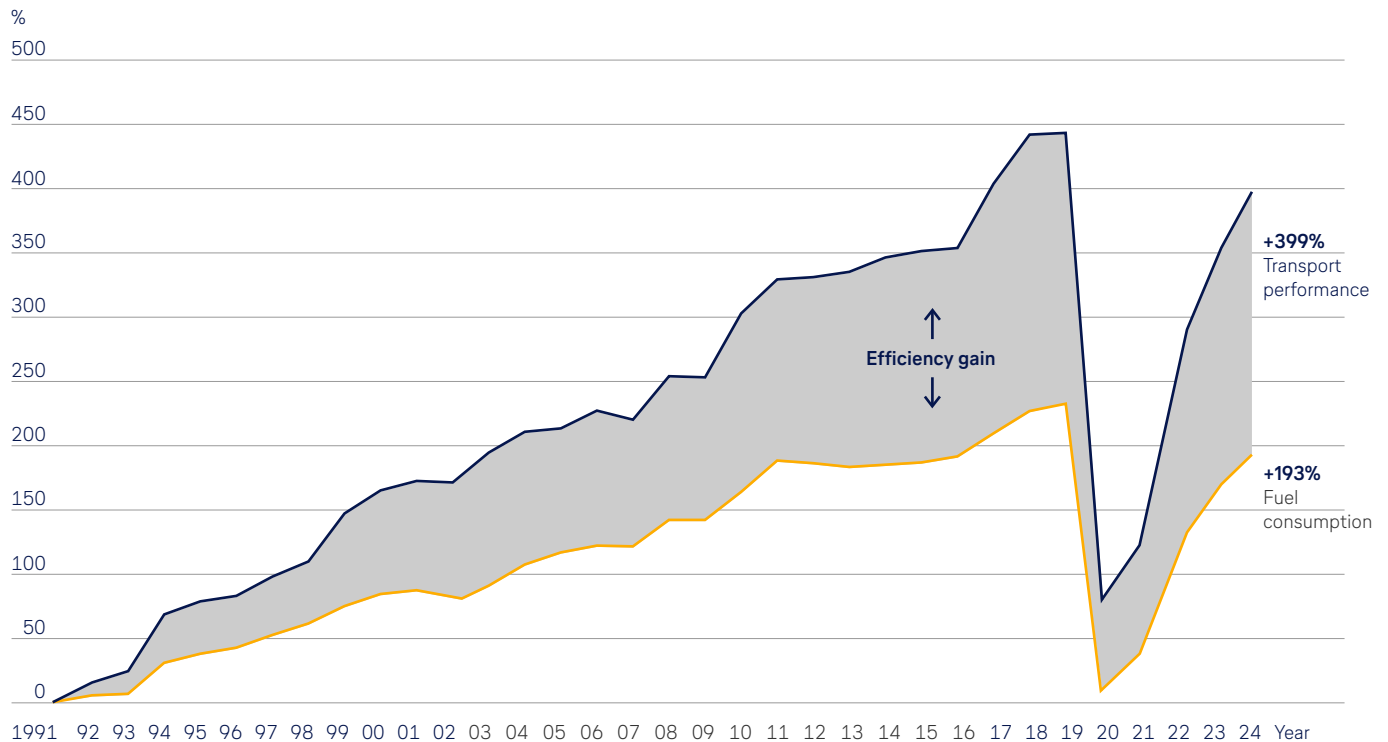
## Improving efficiency by decoupling transport performance and fuel consumption

Despite increasing its transport performance, the Lufthansa Group has implemented numerous measures over many decades to significantly reduce its fuel consumption in relative terms.

The result of these efforts is reflected in the decoupling chart. While transport performance increased by 399% between 1991 and 2024, fuel consumption increased by only 193%. Whereas specific fuel consumption in 1991 was still 446 g/tkm (grams of fuel per tonne-kilometer transported) it was just 262 g/tkm in the 2024 reporting year. This corresponds to an efficiency increase of over 41% compared to base year 1991.

Fleet renewal remains the key driver for the decoupling of transport performance and fuel consumption. Modernizing the fleet saves kerosene and therefore CO<sub>2</sub> in flight operations. The Lufthansa Group fleet was expanded by 18 new aircraft in 2024, including Airbus A320neos, A321neos, A350-900s and Boeing 787-9s, which are powered by modern engines. The 320neo is one of the world's newest and most environmentally friendly aircraft. At year-end 2024, there were around 240 aircraft on the Lufthansa Group's order list. There are also options to buy a further 182 aircraft.

DECOUPLING OF TRANSPORT PERFORMANCE AND FUEL CONSUMPTION SINCE 1991<sup>1, 2, 3, 4</sup>



<sup>1</sup> The following flights are included for the 2024 reporting year: all scheduled and charter flights operated by Lufthansa (including Lufthansa CityLine, Lufthansa City Airlines, Discover Airlines and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines,

Eurowings, Brussels Airlines, and Lufthansa Cargo. Other flights and services carried out by third parties are not included, as their performance is beyond Lufthansa Group's control. <sup>2</sup> Transport performance in TKT. <sup>3</sup> Transport performance corrected in 2020 because

of adjustments to the system. <sup>4</sup> Depiction of the development of transport performance and fuel consumption in % in two graphs, based on the 1991 starting value. The gray area between the two represents the efficiency gain.

# Emissions

## Absolute emissions<sup>1</sup>

### EMISSIONS 2024<sup>2</sup>

CO <sub>2</sub> , in tonnes	
Passengers	23,298,425
±PY	+7.6%
Cargo <sup>3</sup>	5,669,328
±PY	+13.9%
<b>Total</b>	<b>28,967,753</b>
<b>±PY</b>	<b>+8.8%</b>

### CO<sub>2</sub> VOLUME OFFSET THROUGH HIGH-VALUE OFFSET PROJECTS

in thousand tonnes	
By customers	
2024	531
2023	
2022	
by the Lufthansa Group for its own business trips	
2024	75
2023	
2022	

<sup>1)</sup> The following companies are included for the 2024 reporting year: Lufthansa (including Lufthansa CityLine, Lufthansa City Airlines, Discover Airlines, and Air Dolomiti), SWISS (including Edelweiss Air), Austrian Airlines, Eurowings, Brussels Airlines, and Lufthansa Cargo. Other flights and services carried out by third parties are not included, as their performance is beyond the Lufthansa Group's control (see table "Fuel consumption", p. 11).

## Specific CO<sub>2</sub> emissions<sup>1</sup>

### PASSENGER TRANSPORTATION 2024

CO <sub>2</sub> emissions in kilograms/100 passenger-kilometers (kg/100 pkm)		<b>8.75</b>
2024		
2023		
2022		

### PASSENGER TRANSPORTATION 2024 BY AIRLINE

CO <sub>2</sub> emissions in kilograms/100 passenger-kilometers (kg/100 pkm)	
Lufthansa Airlines	8.94
SWISS	8.24
Austrian Airlines	8.95
Eurowings	8.45
Brussels Airlines	8.64

<sup>2)</sup> Absolute emissions in tonnes from flight operations (all scheduled and charter flights). Emissions are recorded from gate to gate, i.e. including taxiing on the ground and holding patterns, as well as flight detours.

<sup>3)</sup> Based on freight tonne-kilometers transported in both cargo and passenger aircraft.

### CARGO TRANSPORT 2024<sup>3</sup>

CO <sub>2</sub> emissions in kilograms/freight tonne-kilometer (kg/tkm)		<b>0.69</b>
2024		
2023		
2022		



Due to a change in the CO<sub>2</sub> emissions calculation methods, the Lufthansa Group does not report previous year's values regarding CO<sub>2</sub> emissions in this publication, since the values would not be comparable. Please refer to the chapter "Methodology for calculating absolute and specific consumption and emissions" on page 17.

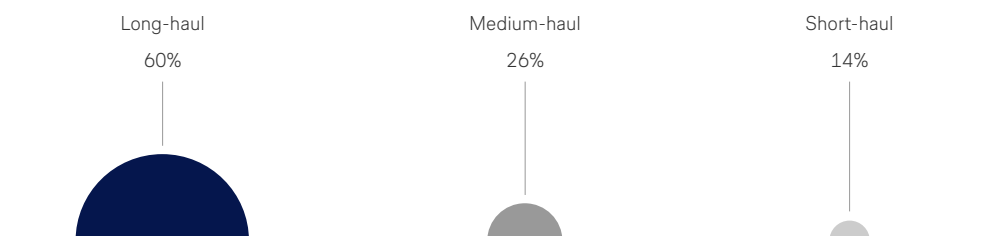
# Specific fuel consumption and CO<sub>2</sub> emissions for passenger transportation

## SPECIFIC FUEL CONSUMPTION AND SPECIFIC CO<sub>2</sub> EMISSIONS IN THE LUFTHANSA GROUP 2024<sup>1</sup>

	Total	Long-haul	Medium-haul	Short-haul
Specific fuel consumption in liters/100 passenger-kilometers (l/100 pkm)	<b>3.47</b>	3.27	3.30	5.47
Specific CO <sub>2</sub> emissions in kilograms/100 passenger-kilometers (kg/100 pkm)	<b>8.75</b>	8.22	8.33	13.80

- Specific fuel consumption in liters/100 passenger-kilometers (l/100 pkm)
- Specific CO<sub>2</sub> emissions in kilograms/100 passenger-kilometers (kg/100 pkm)

## SHARE OF FUEL CONSUMPTION BY TRAFFIC AREAS 2024<sup>1</sup>



<sup>1</sup> Definition of haul length: Long-haul routes over 3,000 km; medium-haul routes: 800 to 3,000 km; short-haul routes: under 800 km

# Carbon footprint

## DIRECT AND INDIRECT CO<sub>2</sub> EMISSIONS OF THE LUFTHANSA GROUP IN COMPARISON<sup>1</sup>

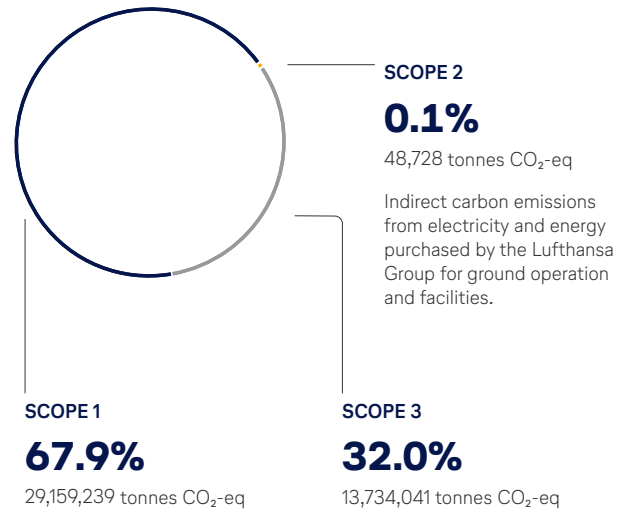
in tonnes CO<sub>2</sub>-eq

	2022	2023	2024
Scope 1			29,159,239 <b>67.9%</b>
Scope 2			48,728 <b>0.1%</b>
Scope 3			13,734,041 <b>32.0%</b>



Due to a change in the CO<sub>2</sub> emissions calculation methods, the Lufthansa Group does not report previous year's values regarding CO<sub>2</sub> emissions in this publication, since the values would not be comparable. Please refer to the chapter "Methodology for calculating absolute and specific consumption and emissions" on page 17.

## DIRECT AND INDIRECT CO<sub>2</sub> EMISSIONS OF THE LUFTHANSA GROUP 2024<sup>1</sup>



Direct carbon emissions from the Lufthansa Group's aircraft and ground vehicle operation, and combustion in ground facilities.

Other indirect carbon emissions from the Lufthansa Group's supply chain, primarily emissions from the kerosene supply chain, and purchased goods and services.

## REDUCED FOSSIL CO<sub>2</sub> VOLUME THROUGH THE USE OF SUSTAINABLE AVIATION FUEL 2024<sup>2</sup>

Lufthansa Group, in tonnes

**71,952**



The greenhouse gas footprint refers to the Lufthansa Group's total greenhouse gas emissions (Scope 1–3). (See certificate on p. 18). The use of Sustainable Aviation Fuel (SAF) reduced the Lufthansa Group's emissions with an impact on the climate by a total of 71,952<sup>2</sup> tons in 2024 (well-to-wake approach).

<sup>1</sup> Scope 1 for 2024 reporting year audited with high assurance. Scope 2 and 3 audited with limited assurance (see. p. 18). <sup>2</sup> Of this amount, 63,943 tons were accounted for by direct savings in the combustion of SAF (Scope 1) and 8,009 tons by savings in the upstream supply chain (production and transport, Scope 3). Both figures refer to the comparison with the use of fossil kerosene.



# Methodology for calculating absolute and specific consumption and emissions

## Kerosene in absolute terms

Kerosene consumption is calculated on the basis of actual flight operations (i.e. using actual load factors and flight routings) according to the gate-to-gate principle. This covers all phases of a flight, from taxiing on the ground to flight detours and holding patterns in the air.

## Emissions in absolute terms

The emissions from flight operations are calculated on the basis of actual transport performance and thus on actual load factors and the actual absolute quantity of kerosene consumed in the reporting year. Transport performance is measured in tonne-kilometers. For passengers and their luggage, an average of 100 kilograms is the standard estimate; for freight, its scale weight.

Carbon dioxide (CO<sub>2</sub>) emissions are arrived at by applying a fixed ratio to the weight of kerosene burned. Until the reporting year 2023 the combustion of one tonne of kerosene was multiplied into tonnes of CO<sub>2</sub> using a tank-to-wheel factor of 3.15 according to the prevalent EU-ETS method. As of reporting year 2024 this factor has been changed according to the change in the EU-ETS method to 3.16. This is also in line with the ISO 14083 standard, which is an internationally recognized standard for calculating emissions in the transport sector replacing the former DIN EN 16258. Therefore CO<sub>2</sub> KPIs for years before 2024 are not directly comparable. Consequently, they are omitted in this publication.

## Specific consumption and emission values

Calculating specific consumption and emissions entails expressing absolute values in relation to transport performance. For example, the ratio of liters per 100 passenger-kilometers (l/100 pkm) is calculated on the basis of actual load factors along with the quantity of kerosene actually consumed. The distances

used in the calculations are great-circle distances. In order to calculate the specific figures for passengers and freight on combination flights (freight and passenger transport in one aircraft), fuel consumption is allocated on the basis of its share of the total payload.



# Verification statement Scope 1–3

verified by  
**MÜLLER-BBM**  
CERT GMBH

**GHG-Protocol**

Müller-BBM Cert Umweltgutachter GmbH, accredited verification body DAKKS D-VS-18709-01-01, confirms that greenhouse gas balance according to the GHG Protocol of the

## LUFTHANSA GROUP

### Deutschen Lufthansa AG and affiliates\*

audited according to the requirements of ISO 14064-3 and the information in the figure "Direct and indirect CO<sub>2</sub> emissions of the Lufthansa Group 2024" on page 16 of the Factsheet Sustainability 2024 was verified with the following uncertainties:

Scope 1 total (reasonable assurance, 2% materiality)	29,159,239 t CO <sub>2eq</sub>
of which fossil origin (reasonable assurance, 2% materiality)	29,095,296 t CO <sub>2eq</sub>
of which biogenic origin (SAF)** (reasonable assurance, 2% materiality)	63,943 t CO <sub>2eq</sub>
Scope 2*** (limited assurance, 5% materiality)	48,728 t CO <sub>2eq</sub>
Scope 3**** (limited assurance, 10% materiality)	13,734,041 t CO <sub>2eq</sub>

Kerpen, April 10<sup>th</sup>, 2025

*J. Müller*

Müller-BBM Cert Umweltgutachter GmbH

\* Details of consolidation scope can be found in Appendix I

\*\* Note: These biogenic CO<sub>2eq</sub> emissions reflect reduced fossil CO<sub>2eq</sub> emissions in Scope 1 from use of certified biogenic sustainable aviation fuel. These reductions were realized for defined customers of LHG (incl. customers on codeshare flights of associated LHG partners) and exclusively allocated to them. They shall therefore not be claimed regularly and in principle by all LHG customers.

\*\*\* market based

\*\*\*\*Includes changes of emissions from purchased fuels due to switch from fossil fuel to sustainable aviation fuel.

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CERT GMBH

**GHG-Protocol**

### Appendix I to verification statement dated 10<sup>th</sup> of April 2025

Deutsche Lufthansa Aktiengesellschaft, Cologne, Germany  
Swiss International Air Lines AG, Basel, Switzerland  
Edelweiss Air AG, Zurich, Switzerland  
Austrian Airlines AG, Vienna Airport, Austria  
Eurowings Digital GmbH, Cologne, Germany  
Eurowings Technik GmbH, Cologne, Germany  
Air Dolomiti S.p.A. Linee Aeree Regionali Europee, Dossobuono de Villafranca, Italy  
Eurowings Europe GmbH, Vienna Airport, Austria  
Eurowings Aviation GmbH, Cologne, Germany  
Eurowings GmbH, Düsseldorf, Germany  
Germanwings GmbH, Cologne, Germany  
Lufthansa CityLine GmbH, Munich, Germany  
Lufthansa Technik AERO Alzey GmbH, Alzey, Germany  
Lufthansa City Airlines GmbH, Munich, Germany  
Jetairliner Americas, Inc., East Meadow, USA  
Cockpitpersonal GmbH, Frankfurt on the Main, Germany  
Lufthansa Aviation Training Germany GmbH, Frankfurt on the Main, Germany  
Lufthansa Aviation Training GmbH, Munich, Germany  
Lufthansa Aviation Training Switzerland AG, Opfikon, Switzerland  
Lufthansa Cargo Aktiengesellschaft, Frankfurt on the Main, Germany  
time-matters GmbH, Neu-Isenburg, Germany  
Brussels Airlines S.A./NV, Bruxelles, Belgium  
Lufthansa Group Business Services GmbH, Frankfurt on the Main, Germany  
Group Engine Management GmbH, Frankfurt on the Main, Germany  
Lufthansa Group Digital Hangar GmbH, Raunheim, Deutschland  
Lufthansa Malta Corporate Finance Limited, San Giljan, Malta  
Lufthansa Malta Treasury Services Limited, San Giljan, Malta  
Lufthansa AirPlus Servicekarten GmbH, Neu-Isenburg, Germany  
AirPlus International, Inc., Alexandria, USA  
AirPlus International Limited, London, UK  
AirPlus International AG, Kloten, Switzerland  
AirPlus International S.r.l., Bologna, Italy  
AirPlus Payment Management Co. Ltd., Shanghai, China  
Lufthansa Industry Solutions AS GmbH, Nordstedt, Germany  
Lufthansa Seeheim GmbH, Seeheim-Jugenheim, Germany  
EW Discover GmbH, Frankfurt on the Main, Germany  
Lufthansa Technik AG, Hamburg, Germany  
Lufthansa Technik Airmotive Ireland Leasing Limited, Dublin, Ireland  
Lufthansa Technik Logistik GmbH, Hamburg, Germany  
Lufthansa Technik Component Services LLC, Tulsa, USA  
Lufthansa Technik Philippines, Inc., Manila, Philippines  
Lufthansa Technik Budapest Repülőgépek Nagyjavító Kft., Budapest, Hungary  
Lufthansa Technik Engine Services, Inc., Tulsa, USA  
Lufthansa Technik Shenzhen Co. Ltd., Shenzhen, China  
Hawker Pacific Aerospace, Sun Valley, USA  
Lufthansa Technik Landing Gear Services UK Limited, Kestrel Way, Hayes, UK  
Lufthansa Technik Malta Limited, Luqa, Malta  
Lufthansa Technik Sofia OOD, Sofia, Bulgaria  
Lufthansa Technik Logistik Services GmbH, Hamburg, Germany  
Lufthansa Technik Puerto Rico LLC, San Juan, Puerto Rico  
Lufthansa Process Management GmbH, Neu-Isenburg, Germany  
Lufthansa Systems GmbH, Raunheim, Germany  
Lufthansa Industry Solutions GmbH & Co. KG, Nordstedt, Germany  
Miles & More GmbH, Frankfurt on the Main, Germany  
Jetairliner GmbH, Raunheim, Germany  
Lufthansa Industry Solutions BS GmbH, Raunheim, Germany  
Lufthansa Systems Americas, Inc., Miami, USA  
Swiss Aviation Software AG, Allschwil, Switzerland

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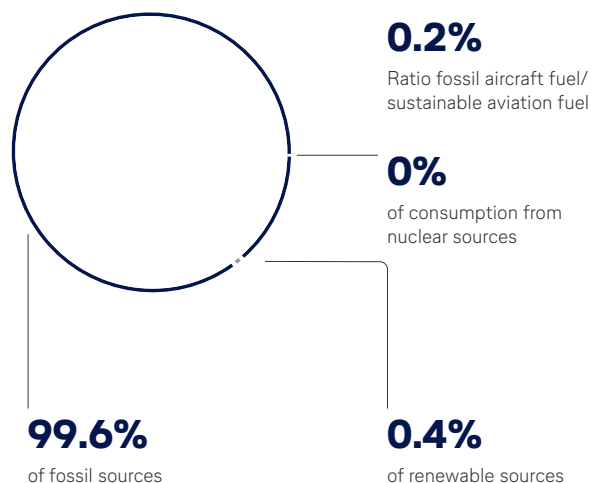
## Use of resources

Lufthansa Group develops its resource and waste management systems on a continuous basis, with a view to minimizing the environmental impacts of its business activities, improving the efficiency of its use of raw materials, and avoiding the use of non-recyclable materials across all areas of its operations.

The Company invests in a variety of technologies to support its transition to a sustainable economy — focusing in particular on improving its fuel efficiency, and reducing energy consumption and carbon emissions from aircraft operations. Primarily this includes actions on the fields of fleet modernization, the use of sustainable fuels and efficiency in flight operation.

### ENERGY CONSUMPTION AND MIX

Percentage in total energy consumption, Lufthansa Group **as of Dec, 31 2024**



The Lufthansa Group records and analyses its global energy consumption annually. The energy consumption figures are of high significance to the Lufthansa Group, since they serve as the basis for both calculating its carbon footprint and verifying the effectiveness of the energy reduction measure that have been implemented.

### Passenger Airlines

**The Passenger Airlines** aim to end the use of single-use plastic and single-use aluminum by 2025<sup>1</sup>

Number of single-use plastic or single-use aluminum items

- in use on board of Passenger Airlines in 2024: **721**
- of which replaced by more sustainable alternatives (e.g. by reusable items) in 2024: **263**

### Lufthansa Technik

**Lufthansa Technik** aims to have a recycling rate of **75%** by 2025

- Recycling rate at Lufthansa Technik in 2024: **57%**

### Lufthansa Cargo

**Lufthansa Cargo** aims to have a recycling rate at its hub in Frankfurt **of 40% by 2025**

- Recycling rate at Lufthansa Cargo (Hub Frankfurt) in 2023<sup>2</sup>: **38%**

<sup>1</sup> The targets cover all single-use in-flight items that are used directly by customers, and not items such as rubbish bags. <sup>2</sup> Exact values for 2024 were not yet available at the time this Fact Sheet was released.

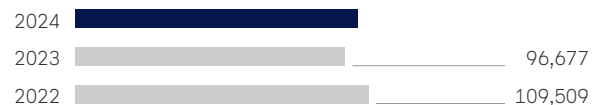
# Employee numbers

With their diverse expertise and their dedication, the employees of the Lufthansa Group play a crucial role in its continued success. As the back bone of the company, they help to bring the Lufthansa Group's vision to life, striving to provide an exceptional premium experience for passengers. Their commitment strives for smooth flight operations, seamless customer service, and streamlined administrative processes. Recognizing their vital contribution, the Lufthansa Group prioritizes the professional growth and well-being of its workforce, fostering an environment where talent can thrive.

## TOTAL HEADCOUNT

Lufthansa Group, employees as of Dec 31, 2024

**101,422**



## TOTAL HEADCOUNT BY GENDER

Lufthansa Group, employees as of Dec 31, 2024

■ Female employees ■ Male employees



## TOTAL HEADCOUNT BY COUNTRY

Lufthansa Group, employees as of Dec 31, 2024

<b>Group employees<sup>1</sup></b>	<b>101,422</b>
of which in Germany	69,971
of which in Austria	6,105
of which in Switzerland	11,545
of which in Belgium	3,413
of which other	10,388

## DISTRIBUTION OF EMPLOYEES

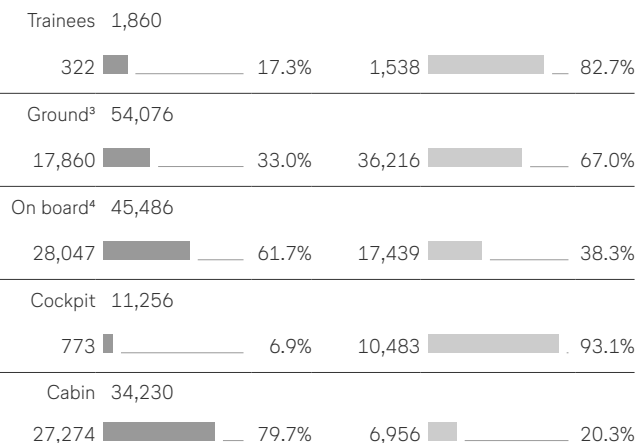
Lufthansa Group, employees as of Dec 31, 2024

<b>Group employees</b>	<b>101,422</b>
of which Passenger Airlines	65,011
of which Logistics	4,261
of which MRO <sup>2</sup>	24,429
of which additional businesses and Group functions	7,721

## HEADCOUNT BY PROFESSIONAL GROUP AND GENDER

Lufthansa Group, employees as of Dec 31, 2024

■ Female employees ■ Male employees



## HEADCOUNT BY BUSINESS UNIT AND GENDER

of which Passenger Airlines



of which Logistics



of which MRO<sup>2</sup>



of which additional business and Group functions



<sup>1)</sup> According to the Company headquarters for each country, including trainees.

<sup>2)</sup> Maintenance, repair, overhaul. <sup>3)</sup> Excluding trainees. <sup>4)</sup> Consists of cockpit and cabin crew.



# Working conditions



The Lufthansa Group prioritizes employee well-being by offering flexible work models and promoting a healthy work-life balance. It aims to provide fair compensation and to adhere to collective bargaining agreements, providing competitive wages and transparent working conditions. The Company also focuses on occupational health and safety, fostering a secure and supportive work environment.

Lufthansa Group, as of Dec 31, 2024



2.2 engagement index<sup>1</sup>



3.7 health index<sup>1</sup>



1,357 absolute injuries  
(9.4 per million hours worked)



6.4% turnover rate

## COLLECTIVE BARGAINING COVERAGE

Lufthansa Group, as of Dec 31, 2024

Germany	77% <sup>2</sup>
Austria	98% <sup>3</sup>
Switzerland	85% <sup>4</sup>

<sup>1)</sup> All major Group companies were included. <sup>2)</sup> The remaining percentage is largely made up of senior executives and management employees in senior positions.

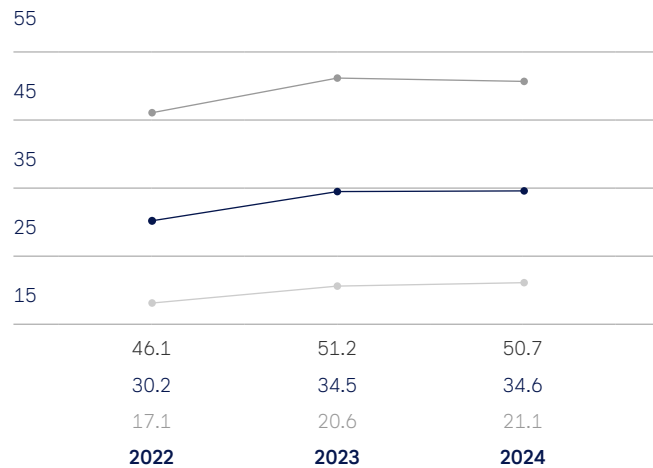
<sup>3)</sup> Austrian Airlines in Europe <sup>4)</sup> Swiss International Airlines

# Working conditions

## PART-TIME EMPLOYMENT BY GENDER<sup>1</sup>

Lufthansa Group, in percent **as of Dec 31, 2024**

■ Female employees ■ Total ■ Male employees



## PART-TIME EMPLOYMENT BY GENDER<sup>1</sup>

Lufthansa Group, employees **as of Dec 31, 2024**

Employees Lufthansa Group ground, total: 35,057

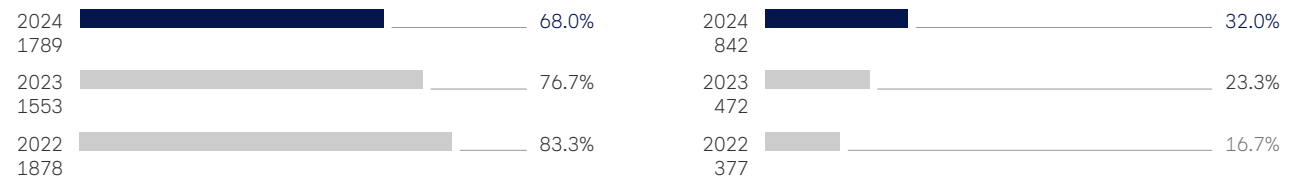


## GENDER SHARE OF EMPLOYEES ON FAMILY-RELATED LEAVE<sup>2</sup>

Lufthansa Group, employees **as of Dec 31, 2024**

Female employees

Male employees



<sup>1</sup> Part-time including partial retirement (also leisure phase)

<sup>2</sup> Including parental leave; previous years' values only include parental leave.

# Equal opportunities and treatment

At the Lufthansa Group, diversity, equity and inclusion are key pillars of the Company's success. With employees from over 163 nations, and a wide range of ages, backgrounds and experiences, the Lufthansa Group thrives on diversity, recognizing that it fuels innovation and enriches its global culture. The Company adopts certain measures to encourage this culture. With a leadership culture grounded in respect, accountability and inclusion, the Lufthansa Group actively shapes a workplace where everyone can grow, contribute and feel valued.

## Share of women in leadership to be increased

The Lufthansa Group uses a variety of approaches to address diversity and equal opportunities. In order to comply with the German Act on Equal Participation of Men and Women in Executive Positions in the Public and Private Sectors (FüPoG II), the Company has set a target for the share of women at the first and second management level for Deutsche Lufthansa AG

by 2025. The target achievement has been measured every five years and will be measured again at the end of the target period. In addition to the statutory FüPoG targets that apply to Deutsche Lufthansa AG, the Lufthansa Group has voluntarily set another target. By 2025, the Lufthansa Group aims to increase the proportion of women in management to 25%.



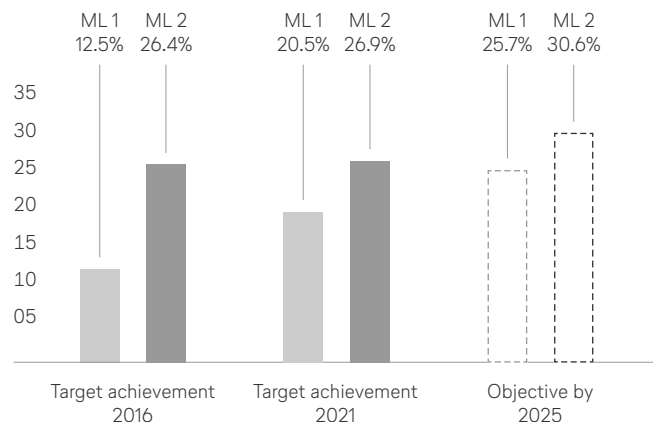
40% **women on Supervisory Board<sup>1</sup>**



20% **women on Executive Board<sup>1</sup>**

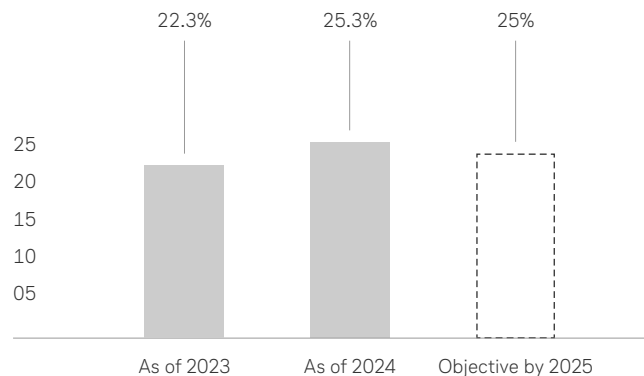
## SHARE OF WOMEN AT MANAGEMENT LEVEL 1 AND 2<sup>2</sup>

(statutory requirements) Deutsche Lufthansa AG, in percent



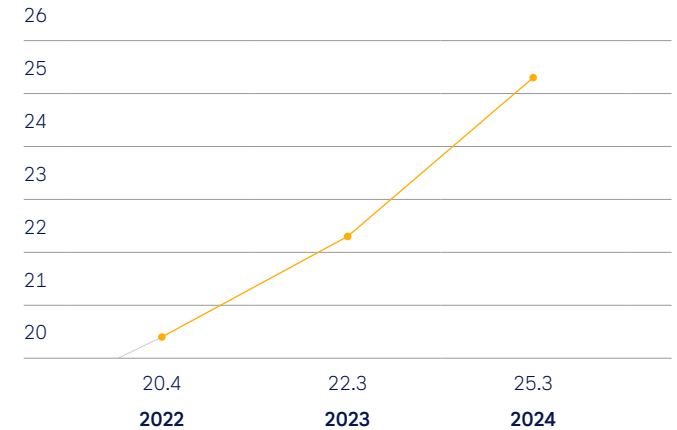
## SHARE OF WOMEN IN MANAGEMENT, TARGET<sup>3</sup>

(voluntary) Lufthansa Group, in percent



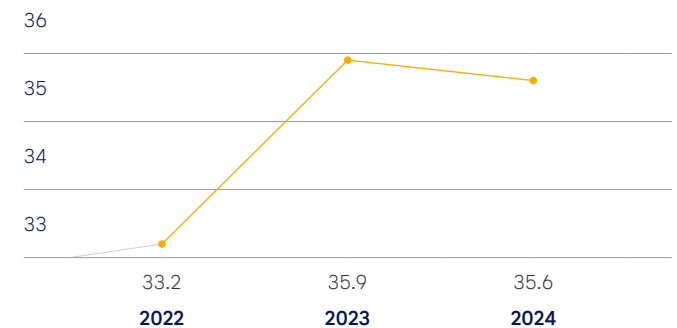
## SHARE OF WOMEN IN MANAGEMENT<sup>3</sup>

Lufthansa Group, in percent **as of Dec 31, 2024**



## SHARE OF WOMEN WITH STAFF RESPONSIBILITY

Lufthansa Group, in percent **as of Dec 31, 2024**



<sup>1</sup> Deutsche Lufthansa AG <sup>2</sup> Women in management positions comprises the proportion of female managers in the Group Executive Board and the three subordinate management levels. <sup>3</sup> Management includes all senior managers.

# Equal opportunities and treatment



## Development programs encourage and inspire talent

Employees are one of the key factors driving the Lufthansa Group's success. In order to position itself as an attractive employer, the Company focuses on retaining talent and recruiting skilled professionals to address future challenges in aviation and the evolving workplace. Priorities include comprehensive training opportunities, workplace health and safety initiatives, and commitment to diversity and equal opportunities. Measures toward diversity, equality, and inclusion aim to minimize risks arising from gender inequality in recruitment and pay. Further actions such as an established whistleblower system are intended to ensure transparency, follow up on incidents, and provide protection against violence and harassment at work. By actively including people with disabilities and ensuring equal opportunities for all employees, the Company intends to counter discrimination and strengthen the psychological well-being of its workforce.

<sup>1)</sup> Reported incidents of discrimination, including harassment and complaints submitted using the channels for own workforce <sup>2)</sup> The gender pay gap is an unadjusted figure based on total remuneration across all roles and locations, as required by ESRS and does not reflect structural workforce differences such as the high proportion of women among flight at-

Lufthansa Group, as of Dec 31, 2024



163 **number of nationalities**



55 **human rights incidents<sup>1</sup>**



27% **gender pay gap<sup>2</sup>**



1:86 **remuneration ratio**



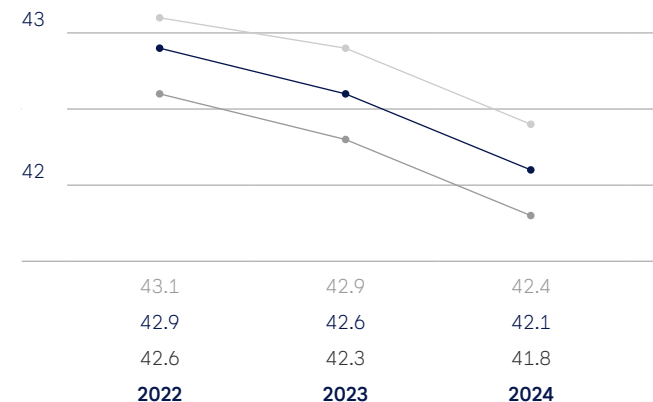
4% **inclusion<sup>3</sup>**

tendants and men among pilots. <sup>3)</sup> Consolidated rate for the German group of consolidated companies. Only reported for Germany in accordance with national law under the German Social Code. No definition for legal entities outside Germany.

## AVERAGE AGE

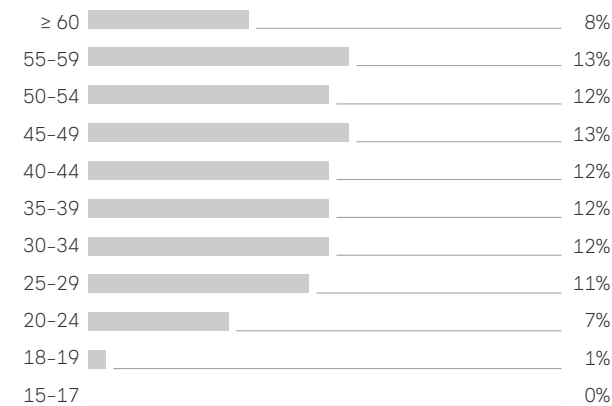
Lufthansa Group, in years as of Dec 31, 2024

■ Male employees ■ Total ■ Female employees



## AGE STRUCTURE

Lufthansa Group, in percent as of Dec 31, 2024





## help alliance



help alliance gGmbH is the aid organization of the Lufthansa Group, and help alliance's vision for more than 25 years has been to enable young people around the world to determine their own futures. Founded in 1999 to pool the voluntary commitment of many individual employees, today help alliance is the central pillar of the Lufthansa Group's social commitment, which also offers employees valuable opportunities to engage in social causes.

To learn more, visit ➤ [the help alliance website](#)

### Example project

#### Dancing to create Self-Confidence in São Paulo

The aim of this help alliance project is to get the children from one of the largest slums in São Paulo off the streets and offer them a safe place where they are lovingly cared for, encouraged, and given regular meals and dance training. Dance therapy is a specific form of pedagogical body work which is led by a dance therapy teacher. The project is run by two flight attendants from Lufthansa Airlines, who regularly visit the project. In 2024, the project scaled up, leading to an additional donation of 1 million euros, now being used to create space for 400 more children and young adults over the coming years.

> 120,000

beneficiaries, mainly children and young adults in need, have participated in help alliance projects or directly benefited from them.

> 7,000

school graduations were made possible through projects that supported children in successfully completing their education – particularly through improved access to schools, newly built classrooms, enhanced learning materials, and better quality of teaching.

> 92%

of Lufthansa Group employees who volunteered in projects say that they are proud to work for a Company that is socially committed.

# Glossary

## AeroSHARK

The “AeroSHARK” functional surface coating developed by Lufthansa Technik and BASF is one example of the successful implementation of fuel efficiency measures. Their “Riblet films”, named after the microscopically small ribs found on shark skin, are capable of reducing the drag of large commercial aircraft, and thus kerosene consumption, by around 1%.

## CO<sub>2</sub>-equivalent (CO<sub>2</sub>-eq)

Unit of measurement used to assess the impact of greenhouse gas emissions on climate change. There are several types of greenhouse gases, including carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and hydrofluorocarbons (HFCs). Each gas has a different impact on the climate. While CO<sub>2</sub> is the best known and most commonly emitted greenhouse gas, other gases can have even stronger impacts. The “CO<sub>2</sub>-equivalent concept” is an attempt to standardize the different effects of these gases in order to make a better comparison between them. The unit of measurement is defined in grams or tonnes of CO<sub>2</sub>-equivalent and indicates how much CO<sub>2</sub> would have to be emitted to have the same climate impact as the greenhouse gas in question.

## Freight tonne-kilometers (FTKO/FTKT)

Airlines distinguish between freight performance offered (FTKO, freight tonne-kilometers offered) and its sold freight performance (FTKT, freight tonne-kilometers transported).

See also → Tonne-kilometers

## Great-circle distance

The shortest distance between two points on the Earth’s surface, measured in kilometers (great-circle kilometers) or nautical miles. The center of a great circle is the center of the Earth.

## Carbon dioxide (CO<sub>2</sub>)

Gas resulting in nature from the burning or decomposition of organic substances (e.g. plant material). The greenhouse gas CO<sub>2</sub> remains in the atmosphere for about 100 years. Scientists attribute the increase in atmospheric CO<sub>2</sub> over the last 100 years to the burning of fossil fuels (e.g. coal, oil, natural gas) by humans. The combustion process results in emissions of 3.16 tonnes of CO<sub>2</sub> per tonne of kerosene used. Aviation currently accounts for 2.5% of global energy-related CO<sub>2</sub> emissions. (Source: International Energy Agency [IEA] 2023 values).

## Passenger related measures (PKT, SKO)

Measure for transport performance in passenger carriage (number of passengers multiplied by distance flown). A distinction is made between available transport performance (PKO, passenger-kilometers offered, or, synonymously, SKO, seat-kilometers offered) and actual transport performance (PKT, passenger-kilometers transported).

## Road feeder service (RFS)

Air freight replacement traffic on the road that uses trucks to carry air cargo between airports or from an airport to a final destination, treated as part of the air freight network.

## Tonne-kilometers (TKT)

Measure of transport performance (payload multiplied by distance). In calculating payloads, passengers are taken into account by means of a statistical average weight. The payload weight per passenger is 100 kg for continental routes and 101 kg for intercontinental routes.

## Well-to-wake

Well-to-wake emissions analysis is similar to the well-to-wheel emissions analysis for road vehicles, and is also known as “Life Cycle Analysis”. It covers the emissions generated at each stage of a fuel’s life cycle — from production through delivery to use as aircraft fuel.

## Credits

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Additional information on “Sustainability in the Lufthansa Group” can be found at:

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The 2024 Annual Report, including the combined non-financial declaration, can be found at:

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