Ecology

Climate friendly logistic chains

The reduction of transport-related CO_2 emissions is a major global challenge as transport volumes are rising and thus in most cases also the CO_2 emissions. Of these emissions, a comparatively low 2.7 % is attributable to seaborne transport, which accounts for over 90 % of the global trade in goods. As a result of their enormous capacity, seagoing vessels offer the best carbon footprint per tonne of goods transported. Rail transport is considered the most environmentally advantageous mode of transport on land. HHLA's business model of linking the two most environmentally advantageous modes of transport, ships and trains, to create climate-friendly logistics chains is its most important contribution towards sustainability and environmental protection. This involves linking the Northern European and Adriatic ports with Central and Eastern Europe via a highly efficient intermodal network. The linkage of ocean-going vessels with feeders, inland waterway ships, barges and rail requires nothing less than the organisation of ideal multimodal transport chains. These transport chains save energy and the infrastructure while causing comparatively little noise and fewer accidents. Added to this is Hamburg's location advantage deep in the hinterland, thanks to the river Elbe as an environmentally friendly transport route.

HHLA also integrates other stakeholders into its creation of climate-friendly logistics chains. As the central, neutral and industry-wide coordination point for mega-ship, feeder and inland vessel traffic in the Port of Hamburg, the Hamburg Vessel Coordination Center (HVCC) offers terminals and shipping companies operational coordination services to optimise the emissions of arriving and departing ships.

With its HHLA Pure product, HHLA offers its customers certified, climate-neutral container transport and container handling for most routes in the METRANS network.

Area optimisation*

The use of land for transport and housing has one of the biggest environmental impacts as land is a valuable, but limited, resource. The efficient use of port and logistics areas through high land usage productivity and increased storage capacity on existing space are therefore measures that HHLA uses to reduce the use of land for transport and building developments. When investing in the demand-oriented expansion of its port terminals, HHLA is guided by its commitment to using scarce port and logistics areas as efficiently as possible. With regard to the efficient use of port areas, HHLA focuses on expanding storage capacity and boosting its quayside handling capacity.

At the Container Terminal Burchardkai, for example, storage capacity is being increased by the space-conserving expansion of the yard crane system. By condensing the container storage areas, the storage capacity of the existing space can be significantly increased in line with demand.

As well as increasing storage capacity by more concentrated storage, thus optimising land usage, the expansion of quayside handling capacity is an important element for the efficient use of space at the terminals. HHLA has significantly increased its quayside efficiency by means of an extensive expansion programme, including the use of state-of-the-art tandem container gantry cranes which can move up to four 20-foot containers simultaneously. Enhancing quay-wall productivity in this way without using additional space enables the company to handle a larger number of containers.

In addition to space-saving yard crane systems and efficient handling equipment, effective processes also make a key contribution towards increasing the efficiency of the existing areas. This combination of increased storage capacity with efficient equipment and processes makes it possible to cope with peak workloads in the existing areas.

For its network between the seaports and the Eastern European and South-Eastern European inland terminals, HHLA subsidiary METRANS uses wagons specially designed for maritime logistics. These 80-foot wagons offer the ideal combination of wagon/train length and carrying capacity. As a result, a block train operating a shuttle service can transport as many as 100 standard containers – more than would be possible with comparable wagons. This high carrying capacity per train makes optimum use of the existing infrastructure at the terminals and railway sidings.

Climate protection and energy efficiency*

HHLA has reported on its carbon footprint regularly since 2008 as part of the international Carbon Disclosure Project (CDP). The CDP is a non-profit initiative that manages one of the world's largest databases of corporate greenhouse gas emissions on behalf of institutional investors and makes this information available to the public.

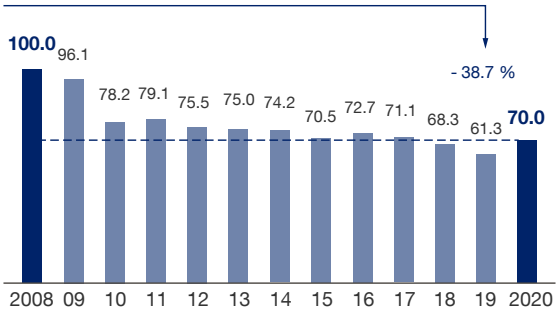
HHLA **calculates its CO_2 emissions** on the basis of the Greenhouse Gas Protocol Corporate Standard (Revised Edition), a global standard for recording greenhouse gas emissions. Within the HHLA Group, emissions mainly relate to CO_2. These are primarily influenced by throughput and transport volumes, traction services provided by the Group's own locomotives and the use of electricity from renewable sources. In line with the Greenhouse Gas Protocol, electricity procured separately from renewable sources was classified as carbon neutral in the calculation of specific emissions. For the calculation of absolute emissions, the CO_2 emissions, which are

lower due to the use of electricity from renewable sources, are shown separately. The power needed by a terminal depends largely on the number of seaborne containers it handles and the number of containers transported over land by rail and truck. HHLA uses seaborne and onshore throughput in containers as an effective indicator to determine specific CO_2 emissions in line with the recommendations of the European Economics Environment Group (EEEG). The recommendations of the EEEG working group are also taken into account in the Global Logistics Emission Council (GLEC) Framework 2.0. HHLA set itself the **target** of reducing specific CO_2 emissions – the CO_2 emissions per container handled – **by at least 30 %** by 2020. The base year is 2008. This aim was surpassed significantly in 2019 with a value of 38.7 % (previous year: 31.7 %). Specific CO_2 emissions fell by 10.3 % in 2019 compared to the previous year.

HHLA set itself a new climate protection target in the reporting year: to reduce absolute CO_2 emissions by at least 50 % by 2030 and to become fully climate neutral by 2040. The base year is 2008.

Specific CO_2 emissions since 2008

Climate protection target: 30 % or more reduction by 2020

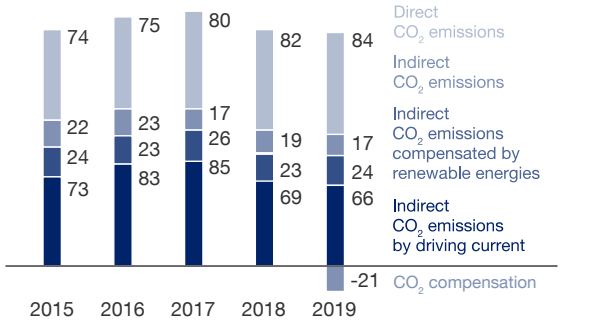


A three-year average showing annual trends in specific CO_2 emissions forms part of the targets agreed with the Executive Board. This is taken into account when determining Executive Board remuneration. Achieving the agreed target range triggers the payment of a corresponding bonus. Corporate governance, remuneration report

Including the use of electricity from renewable energy sources, which led to a 23,834 t reduction in CO_2 emissions, absolute CO_2 emissions decreased by 3,160 t from 170,346 t, or by 1.9 % (previous year: 167,186 t). This decrease in CO_2 emissions was achieved despite the rise in throughput and transport volumes and the use of our own traction fleet. Moreover, CO_2 emissions of the terminal operator HHLA TK in Estonia, acquired in the second half of 2018, were included in the calculations for the first time. The increased use of METRANS' own traction fleet of environmentally friendly electric multi-system locomotives is reflected in the 3.6 GWh increase of traction current consumption. Traction-related CO_2 emissions decreased year-on-year by 2,255 t. This was due in particular to the use of electricity from renewable energy sources for traction in Austria. Among the four purely container-based terminals operated by HHLA, CO_2 emissions were also lowered despite a slight increase in the volumes handled. At 63,936 t, CO_2 emissions were reduced year-on-year by 7.1 %, or 4,874 T€ , in the reporting period (previous year: 59,062 t). This already takes into account the use of electricity from renewable energy sources. Activities organised and carried out at our terminals by third parties that resulted in CO_2 emissions are not included in the statistics.

Direct and indirect CO_2 emissions

in thousand tonnes



The Container Terminal Altenwerder (CTA) was the world's first container terminal to certified climate-neutral by TÜV Nord. To achieve climate neutrality, all unavoidable CO_2 emissions resulting from container throughput, amounting to 20,963 t and including Scope 3 emissions, are offset via Gold Standard projects.

Launched during the reporting period and certified by TÜV Nord, HHLA Pure offers customers climate-neutral container handling and transportation. For this product, the CO_2 emissions resulting from handling and transportation within the HHLA network are offset via compensation projects.

A wide range of projects to boost energy efficiency and thus lower CO_2 emissions were carried out by individual HHLA companies in the reporting period. This includes exchanging existing equipment, such as uninterruptible power supply systems, for more energy-efficient ones, temporarily switching off power-consuming components as required, and the training of employees.

Direct and indirect energy consumption and supply

	2015	2016	2017	2018	**2019**
Diesel, petrol and heating oil in million liter	26.3	26.6	27.4	28.4	28.0
Natural gas in million m^3	2.3	2.4	3.6	4.4	8.0
Electricity[1] in million kWh	138.3	139.6	135.6	135.9	123.2
thereof from renewable energies	76.1	73.2	82.8	78.9	78.7
Traction current in million kWh	130.3	150.0	157.5	181.4	185.0
District heating in million kWh	3.2	3.6	3.6	3.7	3.6
District heating supply[2] in million kWh	–	–	–	10.9	33.3

Consumption of natural gas, traction current and district heating in 2019 is based on preliminary and estimated figures.

1 Electricity without traction current

2 Generated by a highly efficient combinded heat and power generation plant (CHP) based on preliminary figures

A long-term increase in the percentage of electricity used within the Group's energy mix will enable the company to utilise more renewable energies and thereby substantially reduce its carbon footprint. HHLA is therefore converting more and more of its equipment and machinery at the terminals to electricity. Such equipment and machinery produces fewer emissions and less noise and is also easier to service. The electricity required by all office buildings and workshops in Hamburg occupied by HHLA, the CTA, the all-electric yard crane system at the Container Terminal Burchardkai (CTB) and for the rail gantry cranes at the Container Terminal Burchardkai (CTB) and the Container Terminal Tollerort (CTT) comes from renewable energy sources. In the reporting year, additional quantities of renewable energies were procured, largely to compensate for CO_2 emissions from the operation of a CHP unit. During the reporting period, these measures reduced CO_2 emissions by 23,834 t tonnes (previous year: 22,812 t). At the Container Terminal Tollerort (CTT), a photovoltaic system installed and operated by the energy supplier Hamburg Energie Solar produced 108,280 kWh of CO_2-free electricity in the reporting period.

Energy-efficient equipment, systems, machinery and processes not only reduce local emissions, but also have economic benefits. With this in mind, HHLA pays particular attention to the use of energy-efficient, low-emission machinery and equipment when it makes new and replacement investments. In 2019, the fleet of all-electric cars grew to 89 (previous year: 81). HHLA's electric vehicles are powered by renewable electricity and are a quiet, low-maintenance solution that do not generate any local emissions. The electric vehicles cover a distance of over 550,000 km each year and thus reduce CO_2 emissions by approximately 175 tonnes.

In the course of switching to low-emission or locally emission-free machines and equipment, a total of 49 straddle carriers and automated guided vehicles (AGVs) were put into operation during the reporting year. Of the 49 vehicles, 37 are all-electric AGVs and 12 are low-emission straddle carriers. For the first time, the fleet of straddle carriers now includes several vehicles with innovative hybrid technology. These vehicles have a much smaller and more efficient combustion engine, combined with a large battery. Together with the electric wheel hub motors, this results in fuel savings of over 15 %. The all-electric AGVs are equipped with fast-charging lithium-ion batteries and replace the existing diesel-powered AGVs. In addition to switching to low-emission or locally emission-free machines and equipment at its port terminals, METRANS continued its fleet expansion by ordering ten multi-system locomotives for use in international freight traffic within Central and Eastern Europe. The locomotives, which are allowed to operate in Austria, the Czech Republic, Germany, Hungary, Poland and Slovakia, are in the process of being rolled out. One additional low-emission hybrid locomotive for heavy shunting has also been ordered.

In addition, the computer-aided optimisation of container storage positions minimises the distance travelled by transport equipment, thereby reducing energy consumption and noise pollution. The use of retreaded tyres for various container handling equipment and the on-site cleaning and reuse of used oils also improve the utilisation of resources.

The existing energy management system, certified according to DIN ISO 50001 and covering all HHLA companies with measurable energy consumption in Germany and Poland, was audited with no objections during the reporting year.

Environmental and resource protection

Waste and recycling

HHLA's efforts to conserve resources is demonstrated by its waste management system and the use of recycled building materials for the maintenance of its terminal areas. With regard to waste management, HHLA reduces refuse and separates rubbish for recycling wherever possible so that reusable waste can be fed back into the resource cycle. Due to the fluctuation in throughput volumes at the various HHLA terminals, the quantities of each waste type can vary widely from one year to the next.

Excluding construction waste, the amount of waste produced at the German sites decreased by 9.7 % to 8,328 tonnes in the reporting period (previous year: 9,221 t). The amount of hazardous waste decreased at more than twice this rate, falling 20.8 % during the reporting period to 1,500 t (previous year: 1,895 t).

The biggest absolute decrease in waste volume was for fruit waste. This type of waste includes fruit – such as bananas or pineapple – no longer suitable for consumption or processing. HHLA has no influence on the amount of such waste, as it primarily includes goods that were already unfit for sale when they reached Hamburg. At 30.6 %, this type of waste accounts for the largest proportion of waste overall. Fruit waste decreased year-on-year by 826 t to 2,547 t (previous year: 3,373 t). The majority of this waste, 1,552 t, was used by an external biogas plant in order to generate electricity. Nearly 280,000 kWh of electricity were produced without CO_2 in this way in 2019.

With a slight 1.4 % increase to 1,112 t, the amount of commercial waste was virtually unchanged, as was the third largest type of waste, mixed metals, with a 1.2 % decrease to 1,044 t. This type of waste includes items such as steel cables from container gantry cranes or yard cranes that are not longer fit for use. This type of waste is fully recycled. Paper and cardboard packaging decreased year-on-year by 13.1 % to 695 t and represented the fourth largest type of waste.

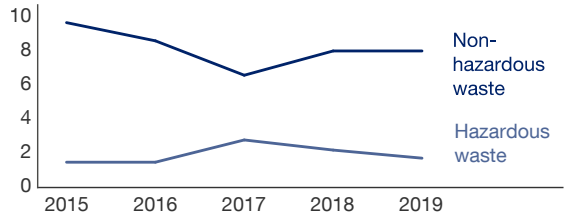
With regard to hazardous waste, the amount of sludge from oil/water separators amounted to 524 t (previous year: 1,065 t). This type of waste primarily results from the cleaning of straddle carriers and other large equipment with pressure washers and is the fifth-largest waste category. The significant decrease by nearly 51 % on last year is due to the increased use of a water treatment plant at the Container Terminal Burchardkai.

At 399 t, residual waste is for the sixth-largest type of waste. The amount of scrap wood and building timber for disposal decreased in the reporting year by 13 %, or 55 t, to 359 t.

After energy, the next largest direct material input at HHLA is construction materials. These are used in the form of recycled building materials to maintain existing terminal areas and to prepare other areas for different purposes. The use of recycled building materials increased year-on-year by 48 % to 31,566 t. The use of slag from waste incineration plants accounted for the largest percentage of this total – 35.5 % or 11,195 t. 10,222 t of recycled building materials were used for the sustainable resurfacing of the Container Terminal Altenwerder. At 34.1 % or 10,759 t, the second-largest share was accounted for by construction materials from asphalt recycling, followed by slag from waste incineration plants that was bonded with cement and used to expand the area used for the yard crane system. This accounted for 8,170 t or 25.9 % of the recycled building materials. A concrete-mineral aggregate accounted for 4.6 % or 1,442 t of total recycled building materials.

Developments in the volume of waste

in thousand tonnes

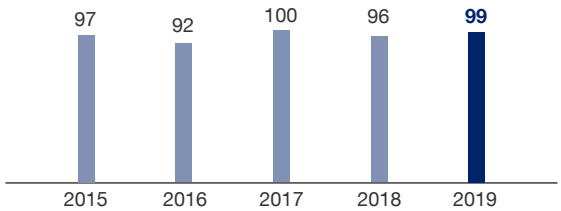


Water consumption

Water is mostly used in the HHLA Group to clean large-scale equipment and containers, as well as for employee hygiene. Compared to the previous year, the amount of water consumed by operations in Germany, Estonia, Poland, Slovakia, the Czech Republic and Ukraine rose by 1.6 % to 98,895 m^3 in 2019 (previous year: 97,344 m^3). This slight increase is primarily due to the fact that the terminal operator HHLA TK was included in the statistics for the first time in 2019. HHLA's facilities draw water from the public supply network.

Water consumption

in dam^3



HHLA locations: Germany, Estonia, Poland, the Czech Republic, Slovakia and Ukraine