

Environmental Statement 2017

For the corporations Fraport AG, N*ICE,
FCS, Energy Air, GCS und FraGround
at Frankfurt Airport



Including the
Environmental
Program until 2020



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Dear Readers,

Our commitment to sustainable business reflects our responsibility for shaping the future. We believe that our long-term success can only be ensured by consistently incorporating aspects not related to business into our management processes. Therefore, since 1999, we have been conducting environmental assessment in accordance with the Eco-Management and Audit Scheme (EMAS) of the European Union. EMAS defines important guidelines for us so that we can successfully organize environmental protection at Frankfurt Airport, conserve resources, and identify environmental risks at an early stage. The EMAS system supports our operational divisions in attaining environmental targets. Ultimately, EMAS provides us with comparative benchmarks for substantiating the improvements in Fraport's environmental performance.

Since the publication of the last comprehensive Environmental Statement three years ago, Frankfurt Airport has achieved significant progress in environmental protection. For example, Fraport's new structure of airport charges rewards airlines even more for deploying low-noise aircraft. Emission-dependent charges have been increased and differentiated even further in order to facilitate this process. An incentive program has also been launched for encouraging airlines to equip aircraft with navigation technology facilitating low-noise approach procedure at Frankfurt Airport. Our responsibility to residents living near the airport is being met through these measures and other action. We will continue to join forces with our partners and work intensively with them to further strengthen Frankfurt Airport's international pioneering role in implementing active and passive noise abatement measures.

Alongside noise abatement in the immediate environment of the airport and other initiatives, we are seeking to reduce our contribution to the

global impact of CO₂ emissions. At the end of 2016, we were extremely gratified to already reach the objectives we had defined for 2020. On the basis of the CO₂ savings targets set by the German Government, we have now defined new targets and intend to reduce the CO₂ emissions attributable to Fraport's activities at Frankfurt Airport to 80,000 tons by the year 2030. This corresponds to a reduction of 65 percent compared with the emissions in the baseline year of 1990, despite the airport's ongoing expansion. CO₂ emissions are projected to fall to 0.9 kg of CO₂ for each traffic unit (i.e., one passenger or 100 kg of freight or airmail). This is equivalent to a reduction of 84 percent.

This "Fraport Environmental Statement 2017" presents the current status of the outlined environmental activities of our company at Frankfurt Airport and many other activities. The data and facts documented here have been audited by an independent environmental expert authorized by the government in accordance with the European EMAS Directive. They demonstrate how environmental management has developed over recent years and the approaches pursued in implementing concrete action. Since we have been regularly subject to EMAS audits for the past 18 years, a high degree of transparency and reliability has been ensured for the Fraport Environmental Management System at Frankfurt Airport.

The Environmental Statement meets our aspiration for communicating comprehensive information in the public domain. We hope that you find reading our report informative and we look forward to an ongoing constructive dialog with you.

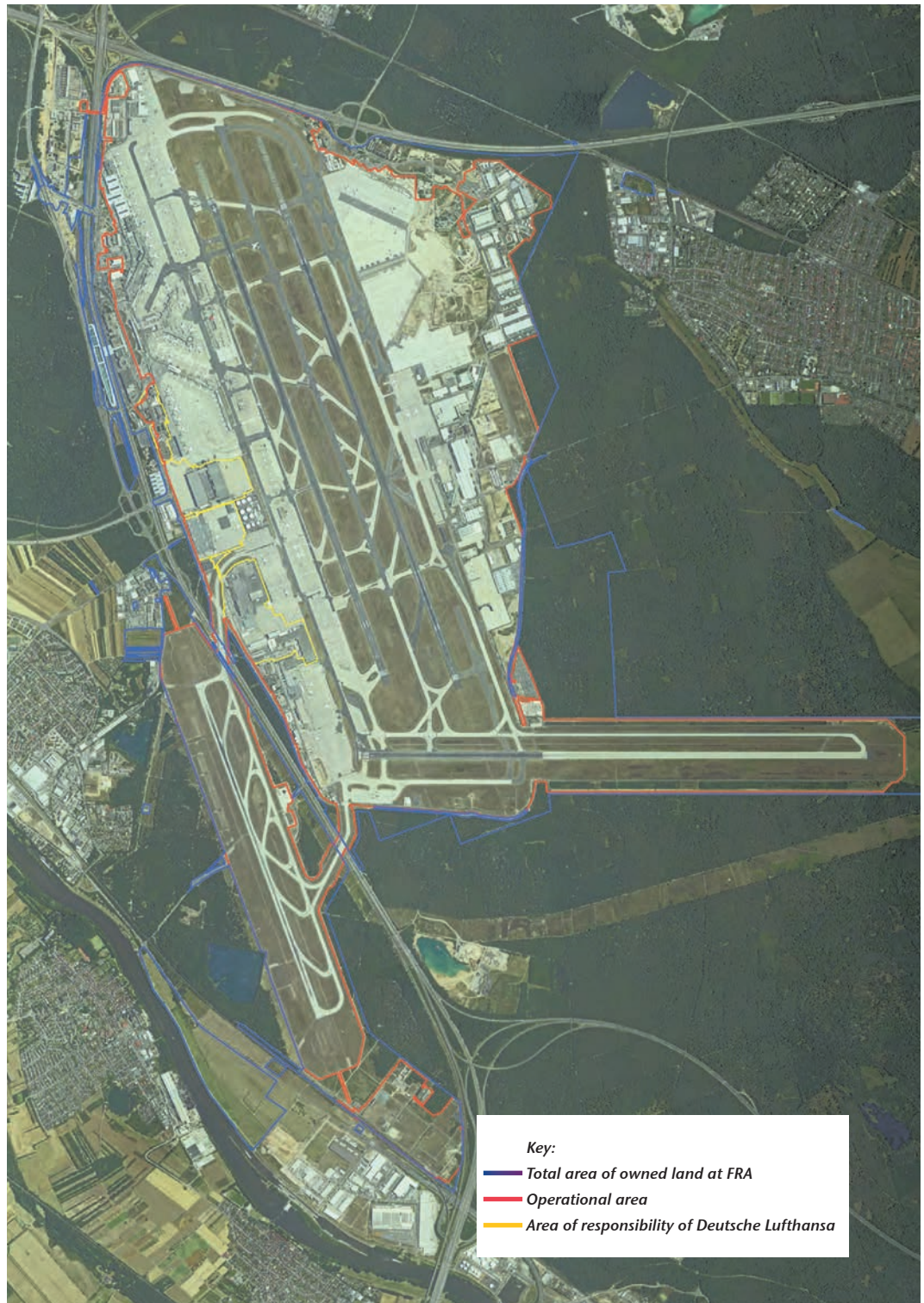


Stefan Schulte

Owned land and operating area at Frankfurt Airport

The total owned land of the airport operator Fraport AG amounts to nearly 23 km². More than 18 km² of this area relates to the actual operation of the airport. The apron area for the

ground handling operations for aircraft amounts to 14 km². Lufthansa is responsible for 0.77 km² of the airport area (area of responsibility).



General data for Frankfurt Airport in 2016

Criteria	Year 2016
Total owned land [km ²]	22.83
Operational area [km ²]	18.59
Takeoff and landing runways	2
Takeoff runways	1
Landing runways	1
Terminals	2
Number of aircraft movements ¹⁾	462,885
Coordinated aircraft movements (number of movements per hour)	90
Number of airlines (only passenger flights): summer schedule 2016	95
Number of destinations (only passenger flights): summer schedule 2016	290
Share of intercontinental passengers	37.8%
Number of high-speed trains each day (long-distance railway station)	205
Number of rapid-transit trains and regional trains each day (regional railway station)	240
Number of passengers	60.79 million
Cargo volume [tons]	2.15 million
Traffic units (without transit)	81.83 million
Number of employees at the airport ²⁾	Approx. 81,000
Number of employees at the Fraport parent company,	11,164
FCS	499
N*ICE	40
GCS	657
FraGround	3,025
Number of companies at the airport	More than 500
Fraport Group revenues [million euros]	2,586.2
Fraport parent company revenues [million euros]	2,057.1
Fraport Earnings before Interest, Tax and Depreciation, and Amortization (EBITDA) [million euros]	1,054.1
Fraport AG Earnings before Interest, Tax and Depreciation and Amortization (EBITDA) [million euros]	845.7

1) Commercial and non-commercial traffic (landing and takeoff and transit), of which 31,274 during the night

2) Fraport AG with subsidiaries and more than 500 additional companies at the airport

Fraport AG (Fraport parent company)

Fraport AG is an international airport operator with head office at Frankfurt Airport (FRA). Apart from the FRA site, Fraport has operations at 27 airports on four continents and provides expertise through numerous subsidiary companies – including locations in Antalya, Lima, St. Petersburg and Xi'an. The company's portfolio includes airport operation and management, as well as consulting

services for all areas specific to airports, such as ground handling services, terminal, retail and real estate management.

The organization of Fraport AG at Frankfurt Airport comprises four Strategic Business Units, three Service Units and 13 Central Units.

The Environmental Management System of Fraport AG

Since 1999, Fraport AG at Frankfurt Airport has been subject to a regular audit by government accredited and supervised environmental experts. The European directive on the "Eco-Management and Audit Scheme" (EMAS) has formed the basis

for such audits. Since 2002, the review has also been carried out in accordance with the international ISO 14001 standard. FCS Frankfurt Cargo Services GmbH (FCS), N*ICE Aircraft Services & Support GmbH (N*ICE) and Energy Air GmbH

Fraport organizational chart – issues, tasks and functions relevant to the environment –

Chairman of the Executive Board (VV)	Member of the Executive Board and Executive Director Labor Relations (VA)	Member of the Executive Board and Executive Director Controlling and Finance (VF)	Member of the Executive Board and Executive Director Operations (VO)
Segment Responsibility	Segment Responsibility	Segment Responsibility	Segment Responsibility
International Activities & Services	Ground Handling		Aviation Retail & Real Estate
Strategic Business Units	Strategic Business Units	Strategic Business Units	Strategic Business Units
Global Investments and Management (BET)	Ground Services (BVD)		Airside and Terminal Management, Corporate Safety and Security
	Loading and unloading aircraft Passenger transport Baggage transport Cargo transport Push-back Water supply for aircraft Toilet waste disposal from aircraft		Terminal operations Flight operations systems Traffic management Monitoring of aircraft noise Forest and biotope Environmental impacts (noise and air) Community issues Passive noise abatement Preventive fire protection Emergency management
			Retail and Properties (HVM)
			Operation of miscellaneous buildings Energy supply Energy and meter management
Service Units	Service Units	Service Units	Service Units
Airport Expansion South (PAS)		Real Estate and Facility Management (IFM)	
Officer for water protection Mitigation area management Construction planning		Technical building management Operation of service workshops Operation of filling stations Operations management PTS Operational winter service Management of landscaped areas Vehicle engineering Geoinformation Water supply Waste management, remediation Operation of drainage systems Operation of sewage treatment plants Operation of the nitrate removal plant	
		Information and Telecommunication (IUK)	
		Environment databases	
		Corporate Infrastructure Management (ZIM)	
		Construction planning Energetic standards	
Central units	Central units	Central units	Central units
Corporate Development, Environment and Sustainability (UEW)	Human Resources (PSL)	Finance and Investor Relations (FIR)	Legal Affairs and Compliance (RAC)
Coordinator for the Environmental Management System Officer for waste Environmental policy and strategy Coordination of environmental management Environmental indicators Environmental reporting Environmental Fund Traffic data	Environmental training	Sustainability reporting	Environmental law
Corporate Communications (UKM)	Internal Auditing (REV)	Controlling (FCO)	HR Top Executives (PFK)
	Central Purchasing, Construction Contracts (ZEB)	Accounting (REW)	
	Environmental procurement		
	Occupational Health and Safety (VA 4)		
	Officer for dangerous goods and radiation protection		

also joined the Environmental Management System of Fraport AG and participated in the audits in accordance with EMAS and ISO 14001. Energy Air GmbH is also audited in accordance with the international ISO 50001 standard. In 2017, subsidiary companies FraGround Fraport Ground Services GmbH (FraGround) and GCS Gesellschaft für Cleaning Service mbH & Co. Airport Frankfurt/Main KG also joined the EMAS network.

GCS is a wholly-owned subsidiary of Fraport AG and it is a service provider for cleaning, logistics, and engineering. The focus of GCS is on cleaning Terminal 1 at Frankfurt Airport. The service portfolio comprises cleaning areas at and in buildings, car parks, facades, baggage handling systems, walkways, and cleaning equipment and systems. Another branch is provision of technical services such as maintenance of WC and shower facilities, repairing faults in sanitary installations, servicing of induction and fan-heater cooking systems, wastewater and drinking-water drainage systems, and inspection of fire doors. A new sector for this portfolio is the provision of intralogistics services such as transport services for concessionaires at FRA. In 2016, the total volume of resources deployed in cleaning amounted to 51,537 kg. This corresponded to a quantity of 11.9 kg/100,000 m². A total of 11,552 kg of detergent was used at our own washing facility for washing mops and cleaning cloths.

FraGround is also a wholly-owned subsidiary of Fraport AG. On 1 July 2017, FraGround, Fraport AG, and FRA Vorfeldkontrolle GmbH formed a joint establishment. The objective of this joint establishment is to provide services in air traffic, particularly in ground handling services. FraGround also carries out winter services by cleaning the runways from snow and ice, and provides personnel for aircraft deicing at Frankfurt Airport. The portfolio includes the following services: baggage, airfreight and aircraft handling, passenger, baggage and cargo transport, and check-in, VIP support, and technical services.

The functions in the Environmental Management System (EMS) are based in the appropriate units of the company – in conformity with the strategic and operational functions and processes. The description of the key functions and processes in the EMS and their allocation within the organizational structure of Fraport AG is shown in the organizational chart presented below.

Structure and Functions of the Environmental Management System

The responsibility for the Environmental Management System lies with the Chairman of the Executive Board of Fraport AG.

The Coordinator for the Environmental Management System is based in the Central Unit for Corporate Development, Environment and Sustainability. This Coordinator handles the necessary organizational and coordination functions, authorizes the internal environmental audit and external auditing of the Environmental Management System (in conformity with EMAS and ISO 14001), and advises the Executive Board and senior management on all issues relating to environmental management. The Coordinator for the Environmental Management System reports to the Chairman of the Executive Board in management reviews.

The functions in environmental protection defined under statutory regulations are performed by the operating officers for water protection (Service Unit for Airport Expansion South), waste (Central Unit for Corporate Development, Environment and Sustainability), hazardous goods and radiation protection (Central Unit for Occupational Health and Safety). The operating officers perform monitoring, advisory and facilitating actions within their specialist functions. They also report to the Executive Board.

Noise and air pollution monitoring is the responsibility of the Department "Environmental Impacts Noise and Air" (Strategic Business Unit Airside and Terminal Management, Corporate Safety and Security). The Neighborhood Dialogue Service Center and the program for passive noise abatement are also allocated to this department.

Fraport AG has an Airport Fire Department, an Emergency Medical Center and a Rescue Service to deal with emergencies. They are managed by the Security Operations Center which operates round the clock as the central command center for emergencies. If a serious emergency occurs, the "Emergency Response and Information Center" (ERIC) is alerted. This then acts as the central control unit for crisis management at Frankfurt Airport. Some functions relating to crisis management are mainly executed by the Airport Fire Department. It has a broadly based range of functions: aircraft fire protection, building fire protection, preventive fire protection (fire protection for buildings and systems) and other fire protection services (Fire-fighting Training Center, maintenance of extinguishing systems, aircraft rescues). The Airport Fire Department also deals with any operations relating to the area of transport of dangerous goods, accidents involving hazardous materials and issues relating to water protection.

The heads of the units have operational responsibility for environmental concerns. Functions are organized by delegation to the relevant management levels. The operating units receive supporting advice on environmental issues from the Coordinator for the Environmental Management System and the operating officers.

The Central Unit for Human Resources (PSL) is responsible for providing basic training and advanced training on environmental issues to employees, environmental auditors and senior management. This unit is also responsible for organizing the training courses defined under statutory regulations for the transport of dangerous goods and radiation protection.

Influence on third parties

Fraport AG is able to exert indirect influence over the environmental behavior of the companies and government agencies located at the airport on the basis of the airport user regulations and the airport charges (landing fees). If any discrepancies or irregularities are identified by Fraport AG, we discuss potential solutions with the management of the individual process owners causing the problem and record them in writing. The solution is then implemented with appropriate support.

Tools of the EMS

The most important tools of the Fraport Environmental Management System:

- Environmental Policy: Framework defined by the Executive Board for environmental targets and measures.
- Environmental Program: Encompasses targets, measures, resources, responsibilities, and schedules for implementing the measures.
- Internal procedure, process, operating and work instructions: Include binding regulations that permit transparent workflows.
- Internal environmental company audits: Audits which review compliance with statutory, official and internal company specifications.
- Evaluation of environmental aspects: Key factors here are statutory regulations, target values of accredited institutions, benchmarks, scientific and engineering findings, and the attitudes of different interest groups.
- Environmental indicator system: The evaluation of environmental aspects is supported by an environmental indicator system that represents all the relevant environmental aspects over an extended timeframe.

The Environmental Policy of the Fraport Group

The Executive Committee of Fraport AG adopted an Environmental Policy for the entire Group in spring 2008. This policy covers a number of fundamental issues including the principles of the UN Global Compact. This allows all the sites, where the Group has operations, to benefit from the long track record of experience gained by the parent company of Frankfurt Airport in environmental protection, for example in training courses and expert support, including on the ground.

- In developing and operating all our business locations, Fraport AG is committed to manage all airport activities in an environmentally responsible manner. We will strive to protect and create a safe living environment at all our business locations by providing our employees with healthy and safe working conditions.
- Maintaining, developing and systematically improving our system of environmental management will support compliance with the

applicable laws and regulations and lead to a continuous improvement of our environmental aspects.

- We will undertake initiatives to promote greater environmental responsibility by training our employees and providing awareness programs for the employees on our business locations.
- Our business will support a precautionary approach to environmental challenges respecting the principle that our Environmental Programs will be cost-effective, economically viable and sustainable.
- We will encourage the development and dissemination of environmentally friendly technologies by applying environmental criteria when selecting goods and services.
- We will provide an annual environmental report of our environmental activities making the information available to both employees and community

Principles for environmental policy

The environmental policy issues relating to climate protection, biodiversity and stakeholder engagement are underpinned by additional principles:

Climate protection principles

We participate in climate protection to ensure the sustainable development of our Group. Fraport is committed to the Kyoto Protocol and aspires to limit the output of relevant greenhouse gases to minimum emissions. We are also involved in local and regional initiatives addressing climate issues within the Agenda 21 process concerning issues relevant for climate protection. Our climate protection activities also make a long-term contribution to limiting the risks arising from altered weather conditions caused by climate change. We are therefore contributing to the sustainable development of our locations.

Biodiversity principles

Our businesses and the protection of natural biodiversity can be reconciled. Natural areas and their inherent biodiversity are conserved and supported to the extent possible within operational guidelines, and operational disruptions are kept to a minimum. If significant interventions are made in the natural environment, equivalent mitigation or substitution is provided including the guarantee of long-term maintenance of purpose.

Stakeholder engagement principles

We engage in a regular dialogue with our community stakeholder groups and we incorporate their concerns and points of view in our corporate decision-making processes. We communicate closely with our partners in the air transport chain and work together to develop joint strategies and concepts directed toward continuous improvement of environmental compatibility in air traffic.

Environmental aspects

The following section provides a description of the important environmental aspects for Fraport AG. These include aircraft noise, climate gases, energy consumption, traffic, air pollutants, impacts on biodiversity, water consumption, wastewater, contamination of soil water and groundwater, dangerous goods and hazardous substances, and waste.

The individual impacts, sources, responsibilities, indicators and trends are described on the basis of the environmental aspect. Each environmental aspect is assessed on the basis of its materiality and controllability. The description of our management initiatives presents the activities to reduce negative impacts on our environment.



Environmental aspect: Aircraft noise

Type of environmental aspect	Indirekt	
Assessment of the environmental aspect	Materiality:	High
	Controllability:	Poor
Environmental aspect	Impact of noise on the population in the vicinity of the airport	
Source(s)	Aircraft, helicopters	
Responsible process owner(s)	Airline companies: Use and operation of aircraft German Air Navigation Services (DFS): Air traffic management, definition of landing and takeoff procedures, infrastructure for air traffic, Federal Air Safety Authority (BAF): Licensing of flight routes Fraport parent company: Planning, construction and operation of takeoff and landing runways, aprons and parking positions, measurement and reporting of aircraft noise	
Indicator(s)	Number of aircraft movements Equivalent continuous sound level $Leq(3)$, 06:00 to 22:00, for the six months with the heaviest traffic Equivalent continuous sound level $Leq(3)$, 22:00 to 06:00, for the six months with the heaviest traffic Frequency with which aircraft exceed the maximum level of 68 dB(A) each night for the six months with the heaviest traffic (see accounting principles)	

Trend(s)

The development of aircraft noise in the neighborhood of Frankfurt Airport is closely associated with a number of factors including the development of aircraft movements on different flight routes.

Since the opening of the Runway Northwest in October 2011, the number of annual aircraft movements has been stagnating. This is due to airlines using bigger aircraft. A large number of active noise abatement measures result in reduced aircraft noise in the region of the airport during the day time. The most effective measures are as follows:

Equipping the A320 Family with vortex generators which reduce the approach noise of a retrofitted aircraft by up to 4 dB. The reduction effect can be particularly noticed in areas far away from the landing threshold.

Raising the approach glide angle on the Runway Northwest from 3.0° to 3.2° started in a test operation on 18 October 2012 and was incorporated into regular operation on 9 December 2014 owing to the verified reduction in noise by approx. 0.8 dB during the approach.

Since 30 March 2017, use of the Ground Based Augmentation System (GBAS), a satellite-based precision approach system, has been possible for appropriately equipped aircraft. This system enables the aircraft to approach at a raised glide angle of 3.2° on the Center and South Runway.

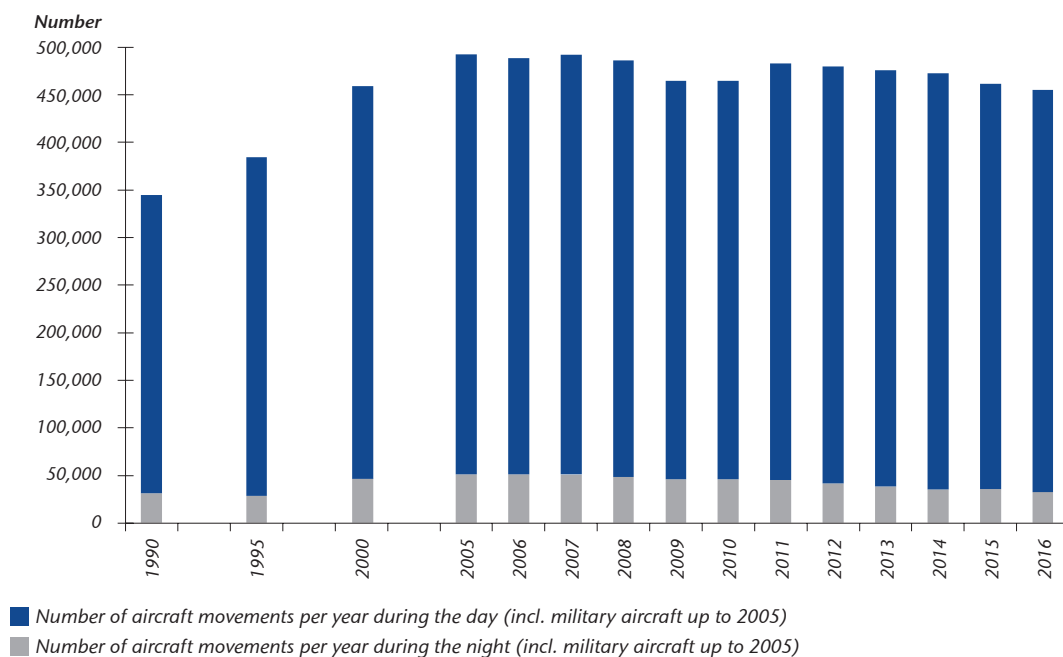
The introduction of the noise respite model in April 2015 slightly relocates the approaches from the Runway Northwest to the parallel runways for flights routed in a westerly direction during the night. As a result of the noise break concept, the Runway Northwest is no longer used for landings during the period from 22:00 to 23:00. This slightly raises the continuous noise level at the approach measuring stations of the South and Center Runway. Furthermore, the South runway is used for takeoff in flights routed in a westerly direction during the period between 5:00 and 6:00.

The "DROp Early Morning" measure was re-introduced so as to also create noise respites for flights routed in an easterly direction. This measure bundles takeoffs on uneven days on Runway 18 West during the period from 5:00 to 6:00.

In areas where takeoff noise is generated, noise reductions are achieved by the introduction of aircraft types with the latest engine technology. Examples of these aircraft types include the Airbus A350, the Boeing 787, the Airbus A380, the Boeing 747-8, the BCS 100 and the Airbus A320Neo. The proportion of modern aircraft types used at Frankfurt Airport is continuously increasing and in 2016 it was nearly 7% during the day and 14% at night.

The current monthly measuring results of all aircraft noise measuring stations are documented at www.fraport.de in the menu item "Infoservice aircraft noise and aircraft noise measurement".

Number of aircraft movements per year, day and night

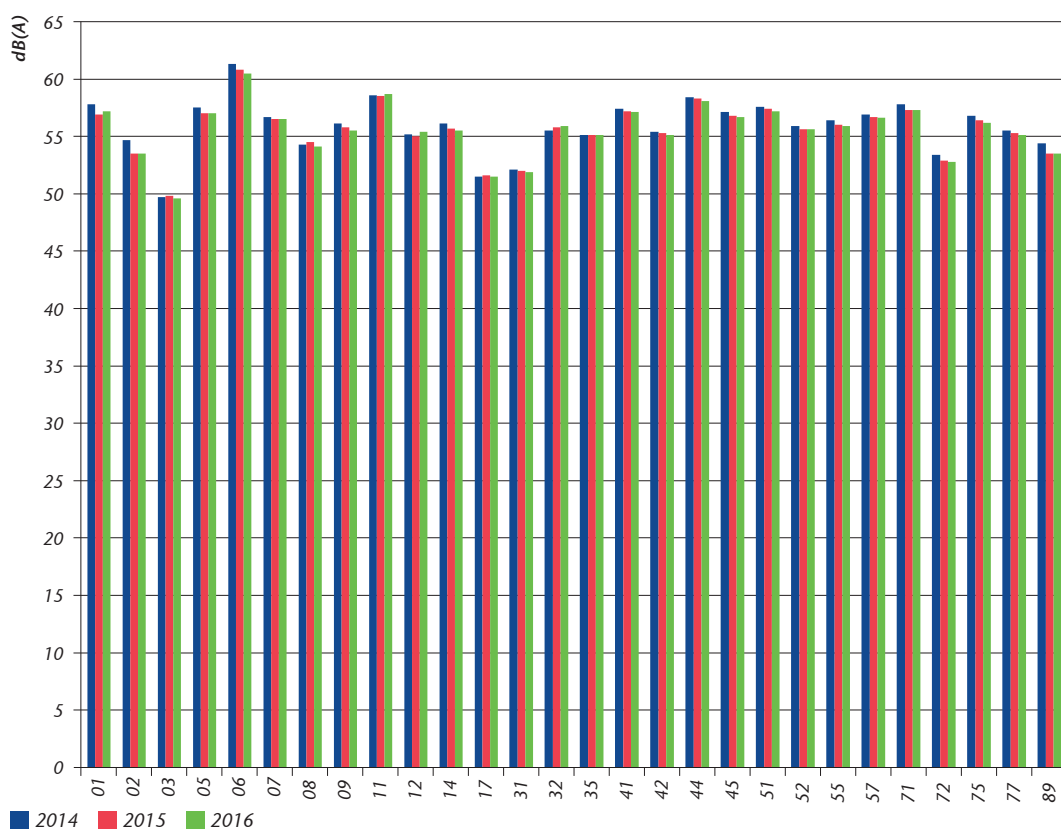


Measuring stations in 2016



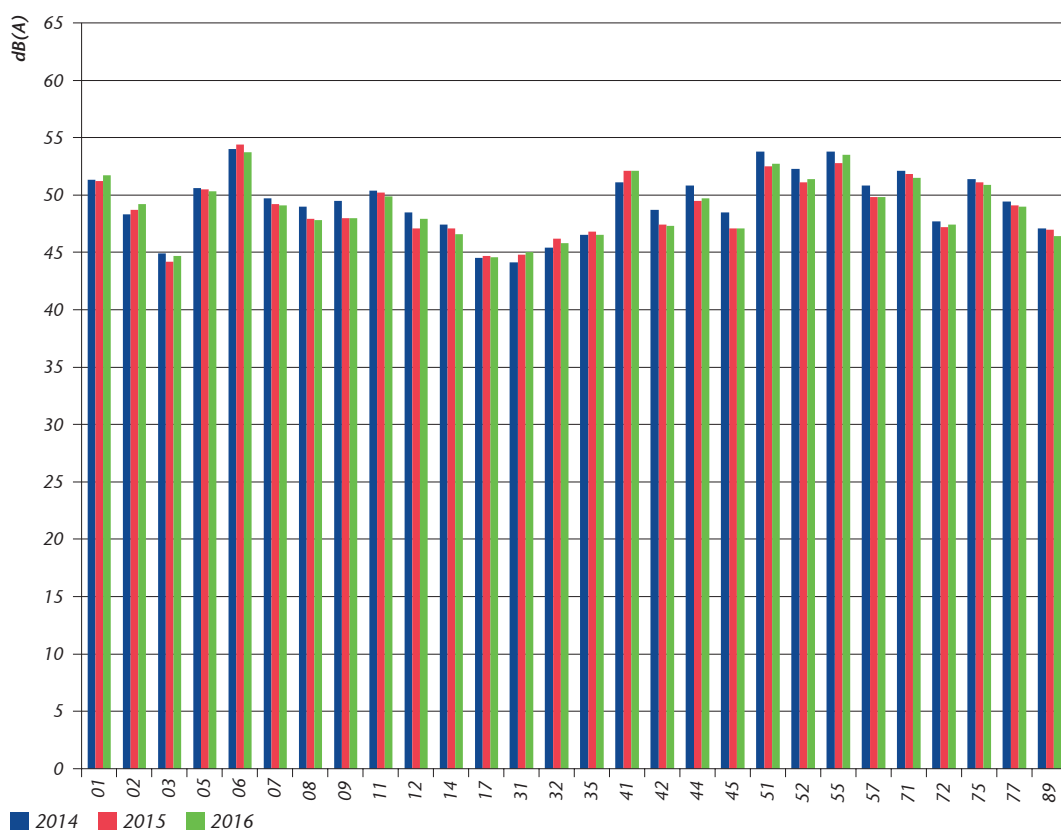
01 Offenbach-Lauterborn	09 Neu-Isenburg-Rathaus	35 Groß-Gerau-West	55 Büttelborn
02 Offenbach-Bieber	11 Flörsheim	41 Frankfurt-Süd	57 Mörfelden-West
03 Zeppelinheim	12 Bad Weilbach	42 Neu-Isenburg-Nord	71 Forsthaus
05 Opelbrücke	14 Hochheim	44 Frankfurt-Lerchesberg	72 Weiterstadt
06 Raunheim	17 Okriftel	45 Frankfurt-Oberrad	75 Gräfenhausen
07 Eddersheim	31 Groß-Gerau-Nord	51 Worfelden	77 Mörfelden-Süd
08 Kelsterbach	32 Nauheim	52 Klein-Gerau	89 Bischofsheim

Energy equivalent continuous sound level $Leq(3)$, by day (06:00 to 22:00) at the 28 measuring stations of the Fraport parent company



Assessment period: the six months of the year with the heaviest traffic, usually May to October

Energy equivalent continuous sound level $Leq(3)$, by night (22:00 to 06:00) at the 28 measuring stations of the Fraport parent company



Assessment period: the six months of the year with the heaviest traffic, usually May to October

Management initiative

Monitoring aircraft noise

Fraport AG operates a total of 28 stationary measuring stations and three additional mobile measurement containers in the neighborhood of the airport. Fraport AG is working together with the city of Mainz to identify another location for a stationary measuring station. This has involved taking test measurements for a period of one year at different locations in order to be in a position to establish the final location. The data from the measuring stations provide continuous monitoring of aircraft noise development. They are used to categorize aircraft types for noise-dependent take-off and landing fees, and for documentation of unusual aircraft noise events.

Package with 19 measures developed for active noise abatement

Measures for active noise abatement are directed toward avoiding or reducing the noise directly at the source, or at least achieving a better distribution. The expert committee "Active Noise Abatement" of the Airport and Region Forum (FFR) has formulated appropriate proposals.

Fraport AG cooperates closely with partners from the airline industry, the State Government and the region. We have joined forces with experts from the airline industry and German Air Navigation Services (DFS) to develop an action plan comprising 19 measures. These include noise-reducing approach and takeoff procedures, a concept involving alternating use of runways, and financial incentives to promote the use of maximally quiet aircraft. The success of the measures is monitored using comprehensive monitoring and the results are posted on the website of the Environmental and Neighborhood House. The expert committee Active Noise Abatement of the Airport and Region Forum (FFR) is continuously working together with experts, representatives of the airline industry and residents from the local communities. The committee develops measures to reduce noise, assesses the results and makes recommendations on implementation.

Vortex generator reduces noise emission – upgrading the A320 Family

A circular pressure equalization opening of the tank on the underside of the aircraft wing generates tonal sounds during the course of the flight. The noise produced during this process is comparable with the noise that arises when air flows over the opening of a glass bottle. The faster the air flows over the opening, the louder the noise becomes. These characteristic sounds for the A320 Family are particularly noticeable in the approach phase when engine power is low. The new component causes the oncoming air to swirl in front of the opening and this prevents the generation of noise. In February 2014, the first Airbus A320 was supplied with vortex generators and since October

2014 the Airbus A319, A320 and A321 aircraft in operation have been gradually upgraded with vortex generators. Evaluation of the measurement results indicates that the vortex generators reduce the level of noise during approach by up to 4 dB.

New technology for precision approaches and a steeper approach is introduced

In 2014, installation of "Ground Based Augmentation System" (GBAS) navigation made Frankfurt Airport the first international air traffic hub in Europe to host satellite-based precision approaches for appropriately equipped aircraft. Together with our project partners, German Air Navigation Services (DFS) and Lufthansa, we hope that GBAS will make an important contribution to increasing efficiency and further noise-reducing approach procedures. An important target is the development of GBAS-based approaches with 3.2 degree approach angles for all runways. Up to now, these have only been possible using conventional ILS technology (instrument landing system) on the Runway Northwest, and here they have already been integrated into regular operations. Since the second quarter of 2017, the steeper approaches using GBAS navigation are being tested on the South and Center Runway. Up to 49 different approach routes can be supported with a single GBAS ground station. The new airport charges introduced in early 2017 incentivized the use of GBAS to make application of the GBAS navigation system even more attractive for airlines.

Procedure for alternate use of runways permits noise respites

From 23 April 2015, the noise respite model 4 recommended for testing by the Frankfurt Aircraft Noise Committee (FLK) and by the Airport and Region (FFR) Forum 2016 underwent testing for flights routed in a westerly direction, which is the main operating direction for the airport. This means that specific takeoff runways are not used alternately in the early morning and late evening hours. Frankfurt is the first major international airport to support an operational restriction on night-time flights including a preferred runway usage concept. This extends the night-time quiet period by one hour in the approach corridors.

The main beneficiaries from bundling landings in the evening hour between 22:00 and 23:00 on the South Runway are the people living in the south of Frankfurt and to the north of Offenbach. However, Neu-Isenburg and southern Offenbach experience more noise pollution by the exclusive use of this runway during this hour. Nevertheless, the night-time quiet period here is extended beyond the core time between 23:00 and 05:00 because the South Runway is not used for landings between 05:00 and 06:00. The morning approaches are then scheduled on the Runway Northwest and the

Center Runway, all morning takeoffs are scheduled for the South Runway. The monitoring results obtained during the course of the test phase confirmed the potential for reducing noise pollution that had previously been calculated, such that the “noise respite” concept was incorporated into regular operations after a year of testing.

Since October 2015, the “DROps Early Morning” (Dedicated Runway Operations) procedure has been used for flights operated in an easterly direction. This procedure had to be temporarily suspended in conjunction with testing the noise respite model 4. In combination with the noise respite model, this procedure is pursuing the approach of creating local times with reduced noise pollution during periods with low traffic as a result of alternating use of the takeoff runways.

System of noise-related airport charges is further nuanced

Since as early as 1993, landing and takeoff charges based on aircraft noise have been used as an additional component in active noise abatement. The charges were initially based on the noise certification data of the individual aircraft types (so-called “noise certificates”) but from 2001 the charges were based on the takeoff and landing noise values measured at Frankfurt Airport. This allowed the charges to be based on the noise footprint actually documented at the location itself and facilitated a more nuanced differentiation of the noise-related charges. The differentiation system was determined by Fraport on the basis of measurements for the level of noise for different aircraft types. The system has since undergone continuous advanced development. The new airport charges introduced effective 1 January 2017 provided an even more nuanced distribution of charges between quiet and loud aircraft.

You will find additional information on active noise abatement at

<http://www.fraport.com/en/business-partner/airlines-cargo/airport-charges.html>

Financial resources provided for structural noise abatement measures

Measures directed toward passive noise abatement aim to reduce the noise level in rooms inside buildings by carrying out adjustments to building structures. Fraport has comprehensive obligations for around 86,000 households in the Frankfurt area under statutory legislation. Their entitlement to submit claims is defined by a noise abatement zone which was established by the Hesse Government on the basis of the very strict rules of the Aircraft Noise Abatement Act (Fluglärmmgesetz). These claims are met by us in full. Furthermore, we have set up a Regional Fund amounting to € 270 million together with the Hesse Government, and this fund is used to finance additional measures. Statutory payments for passive noise abatement and payments from the Regional Fund can only

be granted on application. Fraport maintains a comprehensive package of information and services on the company website <https://www.fraport.com/noise-abatement> in order to provide assistance to residents in determining their claims and supporting the application.

In 2013, the Compensation for Outdoor Living Areas Regulation pursuant to the Aircraft Noise Law came into force. For the first time, this regulation introduced as a statutory requirement compensation for the impaired use of the outdoor living area in the Day Protection Zone 1 of Frankfurt Airport. This affects a total of approximately 12,500 households, primarily in Flörsheim, Frankfurt, Nauheim, Neu-Isenburg, Rüsselsheim und Raunheim.

The level of the compensation is either determined on the basis of a statutory flat-rate amount, depending on the type of property, or by means of an expert report on the marketable value of the property. Applications for this compensation can be submitted to Darmstadt Regional Council. The outdoor living area includes e.g. lawns, gardens, terraces, balconies, roof gardens, and similar communal outdoor facilities such as playgrounds at an apartment block. The buildings can be houses and apartments used for residential living or institutions like nurseries or schools. However, the entitlement only applies to plots of land on which building structures were erected before 13 October 2011 – the day on which the noise abatement zone was defined – or which planning approval had been obtained prior to this date.

The entitlement is phased according to the strength of the noise pollution. Since 13 October 2016, Day Protection Zone 1 has qualified for entitlement. 2,700 applications had already been submitted to Fraport up to the start of the submission period in October 2016. The period for application submissions ends on 12 October 2021.

Investigation into the impacts of aircraft noise on health and quality of life

Fraport participates in the NORAH Noise Impact Study (“Noise-Related Annoyance, Cognition, and Health”) primarily financed by the State of Hesse with the aim of conducting more detailed research on the effects of aircraft noise on health and quality of life. This study is being organized by a research consortium under the management of the Ruhr University Bochum and it has been divided into three modules.

The study was concluded in October 2015 and the results were published throughout Germany.

The first module of the study deals with potential noise pollution and the associated impairment for quality of life. The results demonstrate that the quality of life for people living in the Rhine-Main region is overall very high. The quality of life in

some parts of the region is even higher than the average for Germany and this is initially independent of the level of aircraft noise. However, the participants in the study have the feeling that aircraft noise exerts a severe negative impact on their lives. Nevertheless, this sense of annoyance only arises to a limited extent from the noise level and therefore from the number of aircraft movements. Subjective factors such as expectations of the future noise situation, trust in those responsible for the noise or the assessed usefulness of air traffic play a much greater role.

The second module addressed the health risks that could be linked to traffic noise. Overall, the results of the study showed that the risks posed by aircraft noise for health are low. By comparison with other transport routes (road, rail) and also in comparison with earlier studies, only very low increases in health risks were evident due to aircraft noise.

Furthermore, no evidence emerged of a connection between blood pressure and aircraft noise, even in areas more significantly impacted by such noise. An increase in risk of strokes was also not identified, and no link was established between an increase in heart rate and aircraft noise. Generally speaking, there was no evidence of a significant link between aircraft noise and the risk of a heart attack. Overall, the central research hypothesis of the study – a cause and effect chain between aircraft noise, increase in blood pressure and resulting disease – was not confirmed.

The researchers also investigated the quality of sleep in the Rhine-Main region – from a subjective standpoint on the basis of questionnaires, and objectively by means of medical examinations. It emerged that the quality of sleep was high overall and comparable with areas where there is no noise pollution. The introduction of the night flight ban has brought about a significant reduction in noise during the hours of night-time. However, it has been revealed that personal attitudes can also exert effects even for this module. Researchers have demonstrated that a negative attitude to air traffic can lead to a shortening of deep-sleep phases and therefore to a reduction in the quality of sleep experienced.

The quality of life for children was the subject of the study's third module. The results were already published last year and showed that the health-related quality of life of children and the sense of wellbeing of children and parents are high in all the places where investigations were conducted. Aircraft noise does not exert any impacts on the manifestation of so-called preparatory skills that are necessary for learning to read. This outcome meant that here too the key research hypothesis could not be confirmed. However, although a comparatively small influence on reading performance was measurable, other factors such as the number of children's books in the households of parents played a much greater role here.

The study was unable to take into account the fact that Fraport has been working with its partners to develop and expand active and passive noise protection since the collection of data started at the beginning of 2011.



0214

0242

Elektrofahrzeug
Bedienung
— für —
Einweisung

Pulsar



350 Nm

Schnellstromlader

KCT



Modellregionen
Elektromobilität

gefördert durch
das Ministerium für Wirtschaft, Energie und Klimaschutz
des Landes Hessen
Spendenkonto:
Kfz

AVOW

Environmental aspect: Climate gases

Type of environmental aspect	Direct* und indirect**		
Assessment of the environmental aspect	Materiality:	High*	High**
	Controllability:	High*	High**
Responsible process owner(s)	Fraport parent company: Operation of buildings, plants and vehicles Third parties at the airport: Operation of buildings, plants, vehicles, aircraft		
Indicator(s)	Frankfurt Airport, limit of the LTO cycle: CO ₂ emissions (absolute) [t CO ₂] Fraport parent company: CO ₂ emissions (absolute, relative to the traffic unit) [t CO ₂ ; t CO ₂ /traffic unit]		

Trend(s)

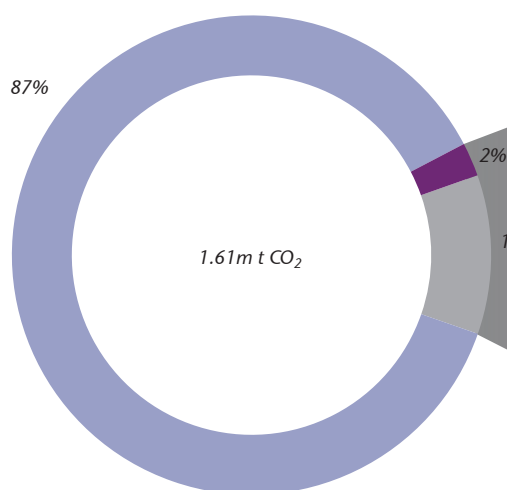
CO₂ emissions by the airport

Total CO₂ emissions by Frankfurt Airport were approx. 1.61 million tons of CO₂ in 2016, calculated within the limits of the LTO cycle (= Landing and Take Off Cycle) up to an altitude of 3,000 feet (914 m) above ground level. More than half of these emissions (58 percent) originated from the operation of the aircraft (including use of Auxiliary Power Units – APU), 18 percent from inbound and outbound travel by passengers and employees to and from the airport. Some 21 percent of emissions are generated by electricity, district heating and district cooling, and only 3 percent were caused by vehicles and ground support equipment at the airport itself. The specific CO₂ emission at Frankfurt Airport amounted to 17.0 kg per traffic unit in 2016. The absolute and the specific CO₂ emissions are now back at the level before the opening of the Runway Northwest in October 2011 and Pier A-Plus at Terminal 1 in October 2012.

CO₂ emissions by the Fraport parent company

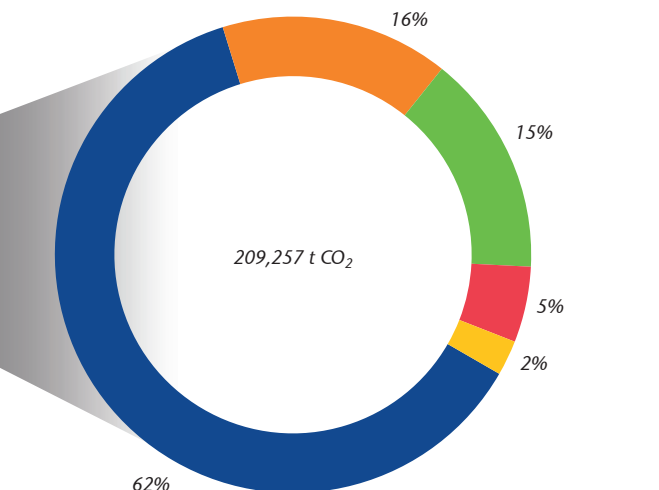
The proportion of the Fraport parent company in the total emissions by the airport was 13 percent in 2016. 2.3 percentage points of total emissions were caused by direct emissions, primarily by the operation of the vehicles and mobile ground support equipment. The remaining 10.7 percentage points were attributable to the energy supplied (electricity, district heating and district cooling). Systematic quantifying of CO₂ emissions commenced at the beginning of 2005 and since then CO₂ emissions have come down by 21 percent in absolute terms despite growth in infrastructure and increased air traffic. In 2016, the absolute and the specific CO₂ emissions at Fraport AG amounted to 209,000 tons and 2.56 kg CO₂ per traffic unit respectively.

Apart from measures to improve energy efficiency, the main factor influencing emissions here is the continuous reduction in the ecological impact of purchased electricity caused by a number of factors including the rapidly expanding proportion of renewable energy.

CO₂ footprint for Frankfurt Airport ...

- Scope 1 (own consumption by the Fraport AG)
- Scope 2 (purchasing of energy by the Fraport AG)
- Scope 3 (third parties at the airport including air traffic in the landing and takeoff cycle)

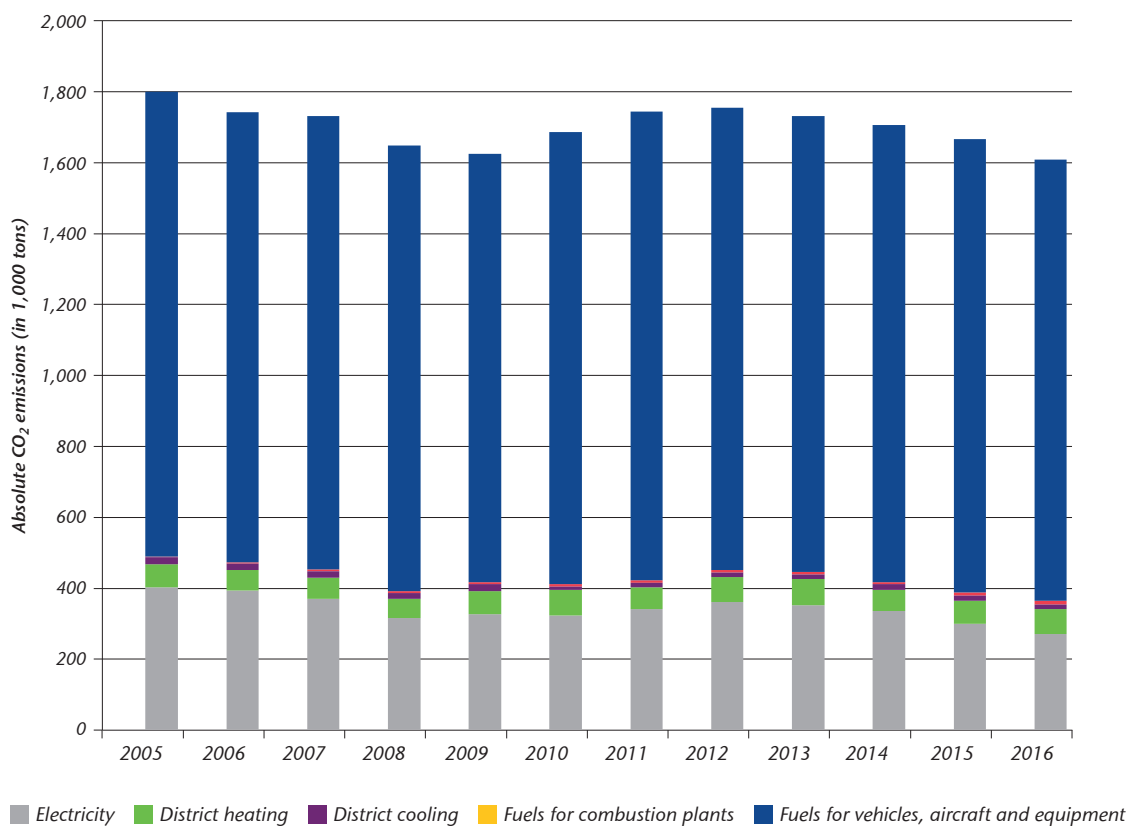
... and Fraport AG, calendar year 2016



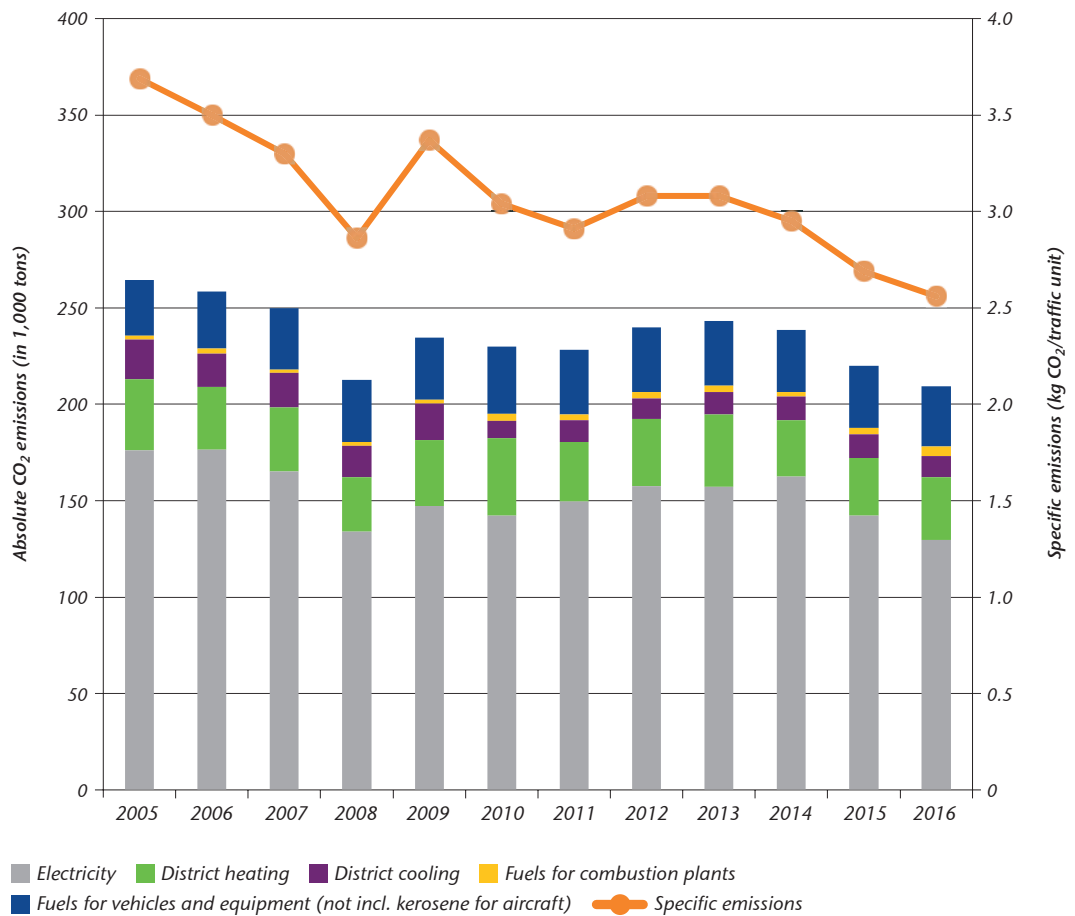
- Electricity consumption by the Fraport parent company (Scope 2)
- Consumption of district heating by the Fraport parent company (Scope 2)
- Operation of vehicles and equipment (Scope 2)
- Consumption of district cooling by the Fraport parent company (Scope 2)
- Miscellaneous
- Operation of emergency power units (Scope 1)
- Operation of fire-fighting training facilities (Scope 1)
- Operation of fuel combustion plants (Scope 1)

CO₂ emissions at Frankfurt Airport

(Fraport parent company, flight operation of the airlines up to an altitude of 914 m and third parties)



CO₂ emissions Fraport parent company



Management initiative

New climate protection target defined

Our previous target was to reduce the emissions per passenger or 100 kg of airfreight for the Fraport parent company at Frankfurt Airport by 30 percent compared with the year 2005 by the year 2020. The second climate protection target related to the absolute CO₂ emissions. Up to now, the specification has been that the value from the year 2005 of 264,000 t CO₂ (Scope 1 and 2) should not be exceeded in the year 2020 even though there has been an expansion of aircraft capacities and growth in traffic volume. Owing to the postponement of the construction of a new terminal, we adjusted the target value downwards to 238,000 t of CO₂.

In 2016, Fraport AG fulfilled its climate protection targets for the year 2020 significantly ahead of schedule. Against this background, we then defined new climate protection targets for the year 2030 based on the climate protection plan of the German Government. By that date, the CO₂ emissions from Fraport AG are projected to have fallen to 80,000 tons. Compared with the status in 1990, which is the baseline year for the international climate protection agreement, this is equivalent to a reduction of 65 percent. The relative emission per traffic unit (one passenger or

100 kg airfreight or airmail) is projected to fall to 0.9 kg CO₂.

Improvement in environmental performance with the Airport Carbon Accreditation Program

Fraport participates in Airport Carbon Accreditation (ACA), a program of the Airports Council International Europe (ACI Europe), the umbrella organization for the airport operators, with the objective of motivating the maximum number of European airports to implement comprehensive CO₂ management and CO₂-neutral operation. The Airport Carbon Accreditation Program has meanwhile become the global sector standard for CO₂ management at airports.

This program will enable the environmental performance to be improved in relation to climate gases. The highest level of 3+ (climate neutrality) can be reached in four stages. Frankfurt Airport was the first airport to be included in the program and was accredited to Level 2 of the Airport Carbon Accreditation in 2009. Reporting was expanded for the upgrade to Level 3 by including information on emission sources which have to be allocated to "Scope 3" in accordance with the Greenhouse Gas Protocol (GHG Protocol) and the upgrade was granted at the beginning of 2012.

These include operation of aircraft in their parking positions on the ground in stationary operation and ground run-ups, the landing and takeoff cycle up to 3,000 feet, and the operation of buildings and ground handling vehicles of third parties, the supply of aircraft with ground power supply, travel to and from the airport by passengers and employees, and business trips. The dialogue with companies based at the airport was also intensified.

Fraport implements company-wide climate protection project

The management activities of the Fraport parent company primarily relate to the emissions within their direct responsibility. However, they also have a role to play in those emissions where managers are only indirectly involved in their generation and they can only exert an indirect influence. Fraport has brought together activities on climate protection in a project which essentially concentrates on three fields: energetic refurbishments, implementation of investments in environmental efficiency measures, and operational energy management.

Portfolio of buildings is upgraded to low-energy status

A rolling program of refurbishment has been ongoing in a project for the air-conditioning control centers at Terminal 1 since 2007.

Energy-saving measures are also being optimized in office and service buildings at the Fraport parent company. Typical measures include replacing pumps and fans with more efficient components, hydraulic balancing of heating systems, and upgrading windows and doors.

Lighting and air-conditioning are harmonized at times of use

Alongside very intensive measures to reduce CO₂ in the portfolio of buildings, a series of operational measures is being implemented as follows:

- Optimization of control for ventilation systems in the terminals.
- Scaling back lighting in the terminals when they are not being used through adjustment of the switching times. Shutting down air-conditioning systems in the terminals at night.
- Dimming lighting in parking garages at Terminal 1 and in the employee parking garage during the period from midnight to 04:00.
- Equipping lighting in the vicinity of the exterior walls of the parking garages with sensors to detect exterior light.

New buildings are planned for optimum energy use

The key issue in new buildings is to ensure maximally efficient use of energy for subsequent operation. Dynamic building simulations are carried out for selected building projects with the aim of reviewing energy use in the building plans and optimizing efficiency measures at the planning stage.

The cornerstones of energy concepts at Terminal 3 include the following:

- Covering the cooling requirement by free cooling and highly-efficient refrigerating machinery.
- Usage of internal loads and dissipated heat from the baggage handling system to provide heat.
- Use of LED lighting.
- Intelligent use of daylight.
- Short pipe and wiring distances with local configuration of air-conditioning control centers.

Energy use optimized for baggage conveyor system

Fraport is committed to a variety of measures including exchange of old motors for more efficient ones, downsizing of power units, systematic shutdowns of conveyors if utilization capacity permits, and installation of lower-friction components.

The use of LED lamps is gradually being expanded

The use of LEDs is an important lever in relation to energy savings and the reduction of maintenance costs. Fraport is gradually introducing LED technology in various areas at Frankfurt Airport.

Fleet of electric vehicles is continuously being expanded

The use of low-emission vehicles is a key focus of our efforts directed toward protecting the climate. Compared with the vehicles powered by an internal combustion engine, this drive technology is particularly suitable for the short distances covered by traffic at the airport and makes a contribution to limiting the impact on air pollution. Approximately 14 percent of Fraport vehicles operating at Frankfurt Airport today are powered by electric motors. This includes a lot of energy-intensive special-purpose vehicles, such as pallet loaders, tow-tractors and conveyor-belt trucks.

Fraport has been taking part in a federal program entitled "Electromobility in Model Regions" funded by the Federal Ministry of Transport and Digital Infrastructure (BMVI) with the aim of driving forward electrification of the vehicle fleet. Fraport is also a member of the "Alliance for Electromobility" in the Rhine-Main model region, in which seven demonstration projects have networked their project content under a common roof. In parallel with this, Fraport and the Lufthansa Group have bundled their activities at Frankfurt Airport with the support of the state of Hesse in the "E-PORT AN Electromobility at Frankfurt Airport" initiative. The objective is to completely electrify aircraft handling over the long term.

By the end of March 2017, 46 electric vehicles were being successfully tested for airport operations in a funded "Fraport E-Fleet" project. 13 of these were specially adapted vehicles being used for aircraft handling. During the funding period, the vehicles covered a distance of more than

500,000 km and they were used for more than 40,000 operating hours. Concrete plans are being laid for additional acquisitions of various types of electric vehicles for ground handling services in the Fraport climate protection project.

Car sharing for business vehicles has been established

Some of Fraport's own company cars have been organized in an interdepartmental car pool since 2012. 2,000 employees at five sites have access to this car pool. The selection from different types of vehicles and the reservation procedure is done via the Intranet. Car sharing improves utilization capacity for the vehicles and the number of company cars to be maintained and purchased is significantly reduced. Out of 100 vehicles in the car pool, ten have electric or hybrid drives.

Pilot project for bike pool at the company's headquarters

Since 2016, it has been possible to borrow bicycles and pedelecs for business journeys at the company headquarters of Fraport AG. This has created another opportunity for environmentally friendly travel. Employees have made good use of the two-wheelers provided and the scheme is being expanded to additional building locations from late summer of 2017.

Fraport contributes to the leading climate reporting initiative in the finance industry

Fraport also contributes its climate reporting data externally in the "Carbon Disclosure Project" (CDP), the world's leading climate reporting initiative in the finance industry. This organization analyzes companies and their strategies for climate change and CO₂ reporting.



Environmental aspect: Energy consumption

Type of environmental aspect	Direct* und indirect**		
Assessment of the environmental aspect	Materiality:	High*	High**
	Controllability:	High*	Medium**
Responsible process owner(s)	Fraport parent company: Operation of buildings, equipment and vehicles. Third parties at the airport: Operation of buildings, equipment and vehicles		
Indicator(s)	Frankfurt Airport: Consumption of electricity, heat (district heating, local heating), district cooling, fuels for vehicles (absolute, relative per traffic unit) [GWh, kWh/traffic unit] Fraport parent company: Consumption of electricity, heat (district heating, local heating), district cooling, fuels for vehicles (absolute, relative per traffic unit) [GWh, kWh/traffic unit]		

Trend(s)

Energy consumption at Frankfurt Airport

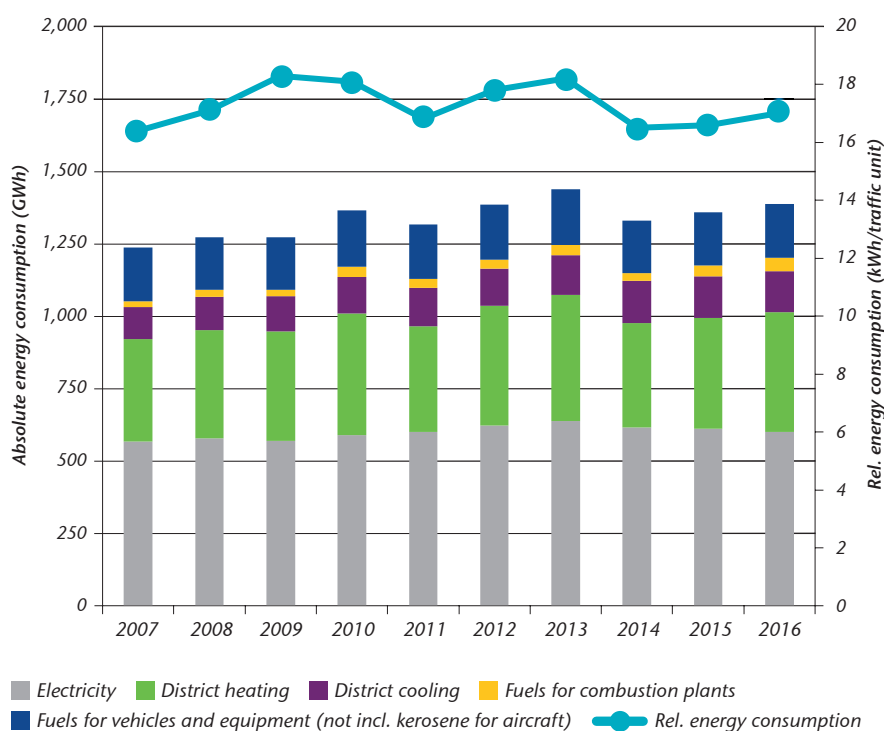
The primary energy sources are electricity and district heating. The development of total energy consumption reflects the continuous expansion of infrastructure and growth in traffic volume. During the years from 2011 to 2013, the absolute energy consumption rose to 1,438 GWh. This was due, among other things, to the opening of Runway Northwest, Pier A-Plus at Terminal 1, including the associated expansion of stationary ground power supply units, the baggage handling system, and the apron lighting, the Group headquarters, two additional new buildings and Fire Station 4. The energy measures described in the section on climate gases counteracted the increase in absolute consumption driven by the expansion so

that in 2016 a value of 1,388 GWh was achieved. In 2016, the specific value amounted to 17 kWh per traffic unit.

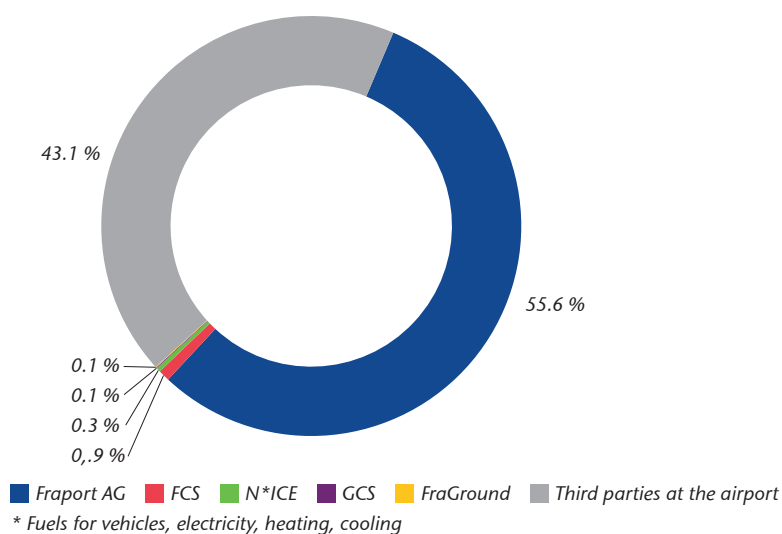
Energy consumption by the Fraport parent company

The Fraport parent company itself is the biggest consumer of energy at Frankfurt Airport. Energy consumption here remained relatively constant at approx. 750 million kWh per year between 2005 and 2009. Starting in 2011, consumption started to rise as a result of the expansion. The absolute and specific consumption by the Fraport parent company essentially reveals the same trend as total energy consumption at the airport and in 2016 amounted to 771 GWh or 9.4 kWh per traffic unit.

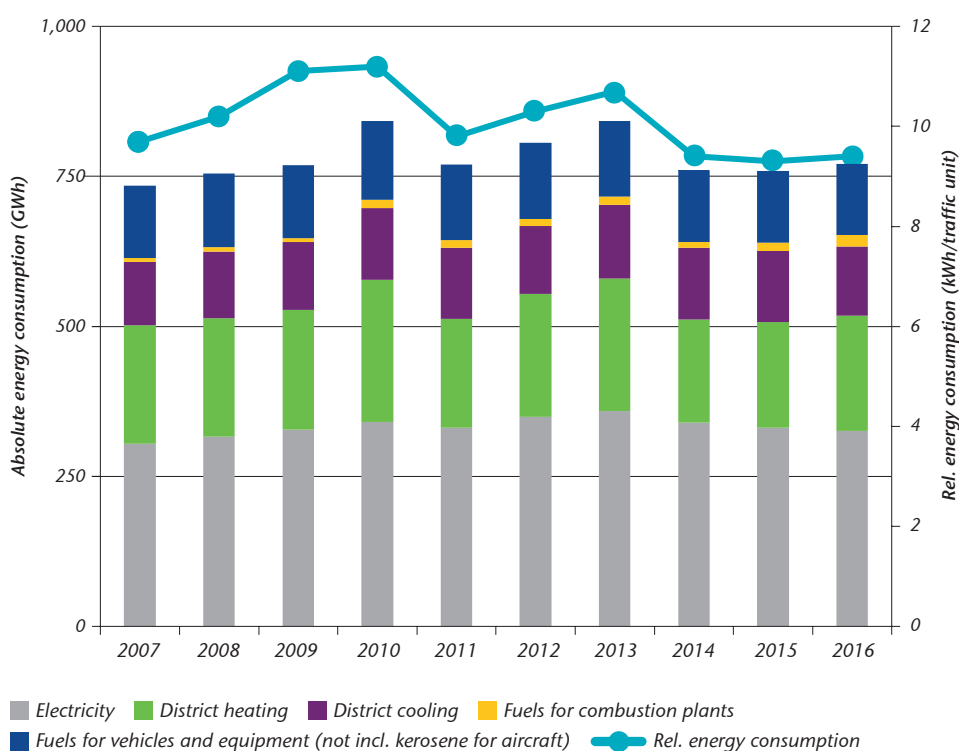
Energy consumption broken down by energy carriers at Frankfurt Airport (Fraport parent company, FCS, N*ICE, third parties) and specific energy consumption (kWh per traffic unit)



Energy consumers* at Frankfurt Airport in 2016



Energy consumption at the Fraport parent company broken down by energy sources and specific energy consumption (kWh per traffic unit)



Management initiative

The issues

- Energy savings in buildings and equipment in the portfolio of buildings and new buildings
 - Retrofitting the fleet with electric drives
- are described in the section on climate gas emissions.



Environmental aspect: Traffic

Type of environmental aspect	Indirect	
Assessment of the environmental aspect	Materiality:	Moderate
	Controllability:	Poor
Responsible process owner(s)	Passengers: Choice of transportation to and from the airport. Employees: Choice of transportation to and from the airport. Public carriers: Offer of rail and bus connections. Airline companies: Offer of integrated products rail/flight. Truck and cargo forwarders: Structure of smooth-running airfreight dispatch and return. Fraport parent company: Impact on the appeal of the link between the airport and the public transportation network.	
Indicator(s)	Frankfurt Airport: Proportion of passengers who use public transport (Percent originating passengers) Fraport parent company: Proportion of employees who use public transportation (Percent employees)	

Trend(s)

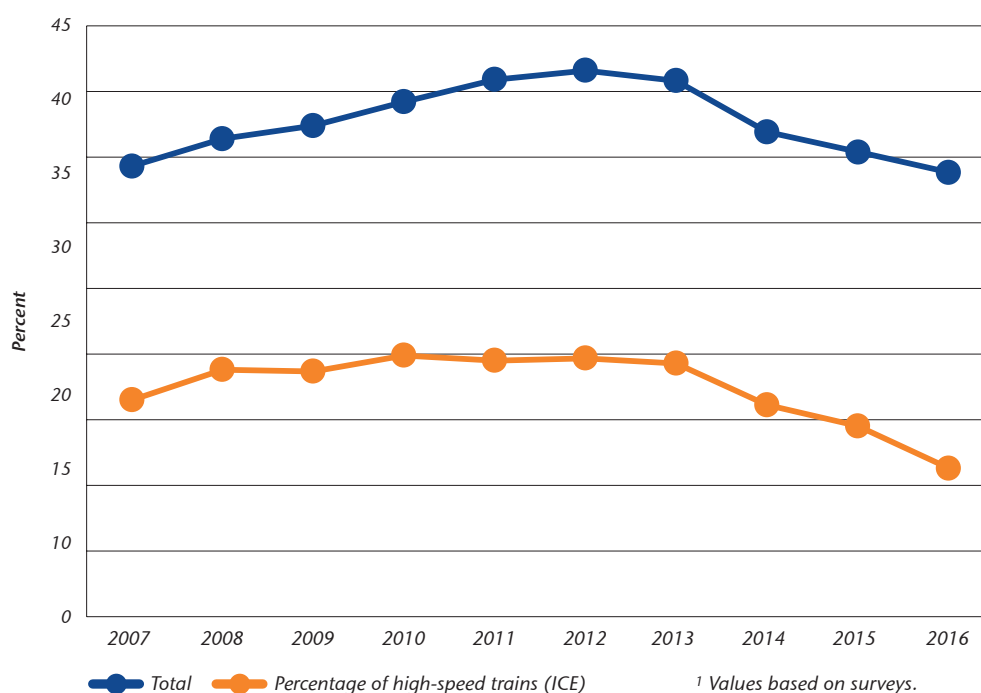
Intermodal traffic links give passengers and employees the opportunity to go to or leave the airport using public transportation.

The use of public transport (suburban rail service, regional rail network, regional express, ICE, IC, long-distance trains, buses) by originating passengers to travel to and from the airport has been declining during recent years and most recently amounted to 33.8 percent in 2016, in spite of further improved intermodal service packages and services, such as expansion of ICE Rail & Fly and Code Share connections. In 2012, the proportion was still 41.6 percent. Potential causes for this trend are the development of the originating passenger volume and petrol prices, the availability

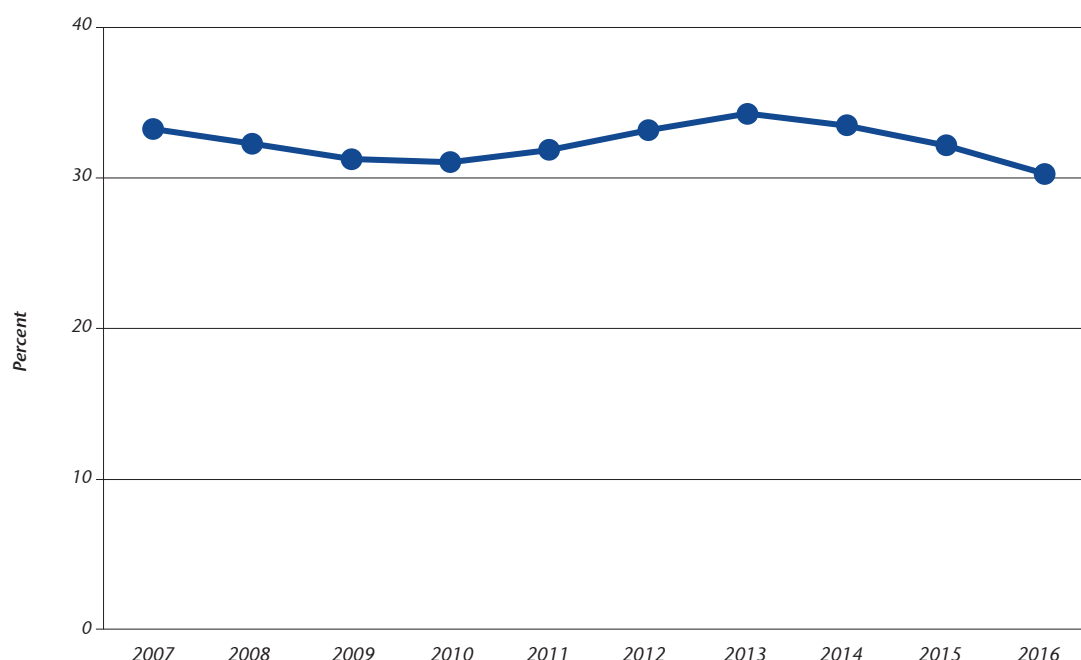
of value-for-money vacation parking spaces around the airport and strike-related cancellations of train connections. Irrespective of this, Fraport will continue to pursue the improvement of intermodal service packages and services. The aim is to increase the proportion of passengers travelling to and from the airport by public transport but this objective may need to be strategically reassessed and it is therefore being suspended until that happens.

The proportion of employees at Fraport AG using public transport to get to their workplace has remained stable over recent years and averaged 32 percent. In 2016, the value was 30.2 percent.

Proportion of passengers who use public transportation (rapid transit trains, regional trains, regional express, high-speed trains (ICE), intercity trains (IC), buses)¹



Proportion of employees of the Fraport parent company who use public transportation to travel to and from work¹



¹ Values based on surveys.

Management initiative

Further optimizing appeal of intermodal packages at Frankfurt Airport

Fraport works together with German Rail (Deutsche Bahn), Lufthansa and other airlines to enhance the appeal of intermodal packages at Frankfurt Airport. Measures designed to promote this appeal include the development of integrated travel offers and support for expanding rail links (routes, frequencies) and ongoing development of the AIRail product. Furthermore, the package of scheduled long-distance bus connections is being improved from and to the German regions which are not optimally connected to the long-distance rail network of German Rail (DB) to Frankfurt Airport. Long-distance bus stops are being set up to serve this mode of transport.

Fraport provides the Job Ticket for employees

Fraport employees are motivated to use public transport with the Job Ticket provided free of charge. Nearly 30 percent of the workforce took up this offer. However, many timetables frequently preclude more extensive use of the Job Ticket because they fail to meet the requirements of shift work. Additional negative factors are the lack of connections between the airport and some residential areas where employees live, or connections only at unattractive times. The RMV public transportation network (Rhein-Main-Verkehrsverbund) is now planning to introduce 24-hour operation for suburban train services routed to the airport and therefore provide commuters with an improved level of service.



Environmental aspect: Air pollutants

Type of environmental aspect	Direct* und indirect**		
Assessment of the environmental aspect	Materiality:	Low*	High**
	Controllability:	Medium*	Poor**
Responsible process owner(s)	Third parties outside the airport: Road traffic, trade and industry, direct heating, etc. Third parties at the airport: Operation of buildings, equipment, vehicles, aircraft Fraport parent company: Operation of buildings, equipment and vehicles		
Indicator(s)	Air traffic at Frankfurt Airport (up to an altitude of 300 m): Emissions of the air pollutants NO _x , benzene, PM 10 (absolute, relative per traffic unit) [t, g/traffic unit] (see Environmental Figures air emissions)		

Trend(s)

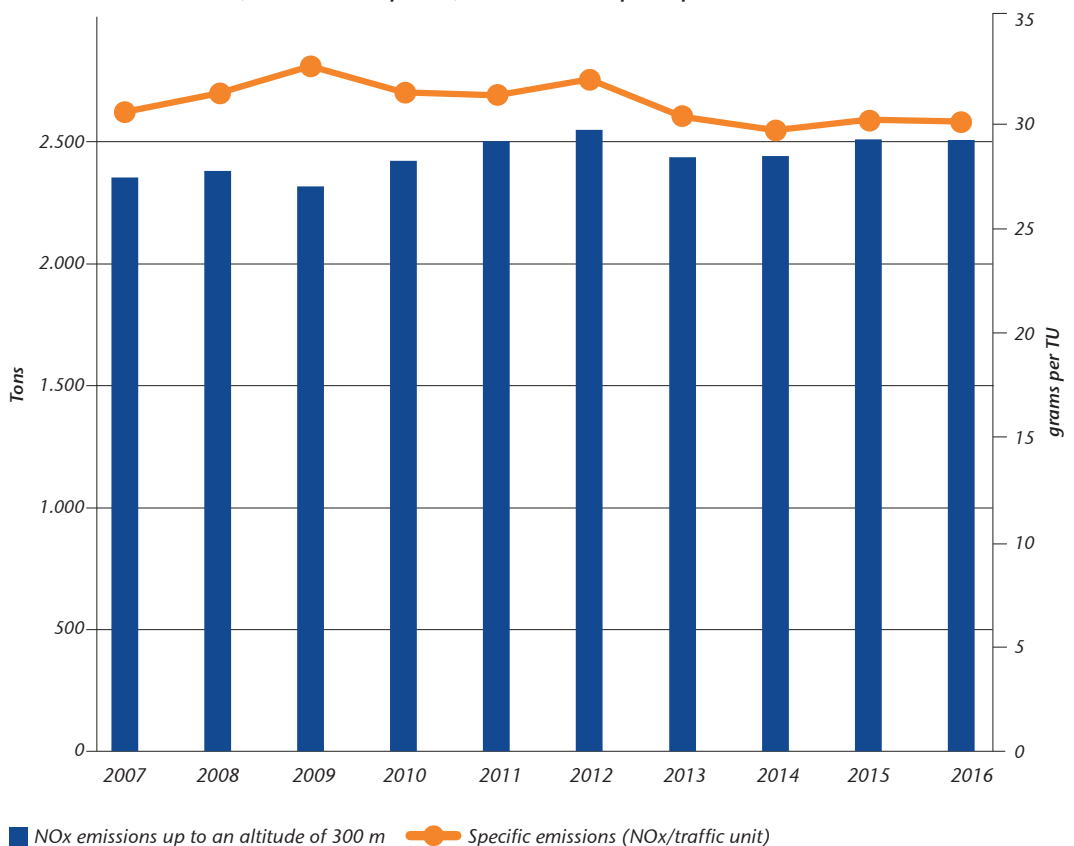
Emissions from the airport

The emissions from the airport are primarily caused by air traffic. The second most important cause relates to emissions on the ground generated by traffic on the apron and by automobiles travelling to and from the airport, and road traffic at and around the airport.

Aircraft emissions have been calculated continuously since 2000. The method of logging pollutant emissions from aircraft to create an inventory was adjusted to comply with the ICAO-Doc 9889 "Airport Air Quality Manual".

The most relevant pollutant in aircraft emissions is nitrogen oxide (NO_x) with 2,510 tons in 2016. This value is at a level roughly equivalent with previous years. The specific emission amounts to approximately 31 grams per traffic unit. The data relate to aircraft emissions up to an altitude of 300 m. The impact of emissions from a greater height makes an impact of less than 10% at ground level.

NO_x aircraft emissions (absolute and specific) at Frankfurt Airport up to an altitude of 300 m



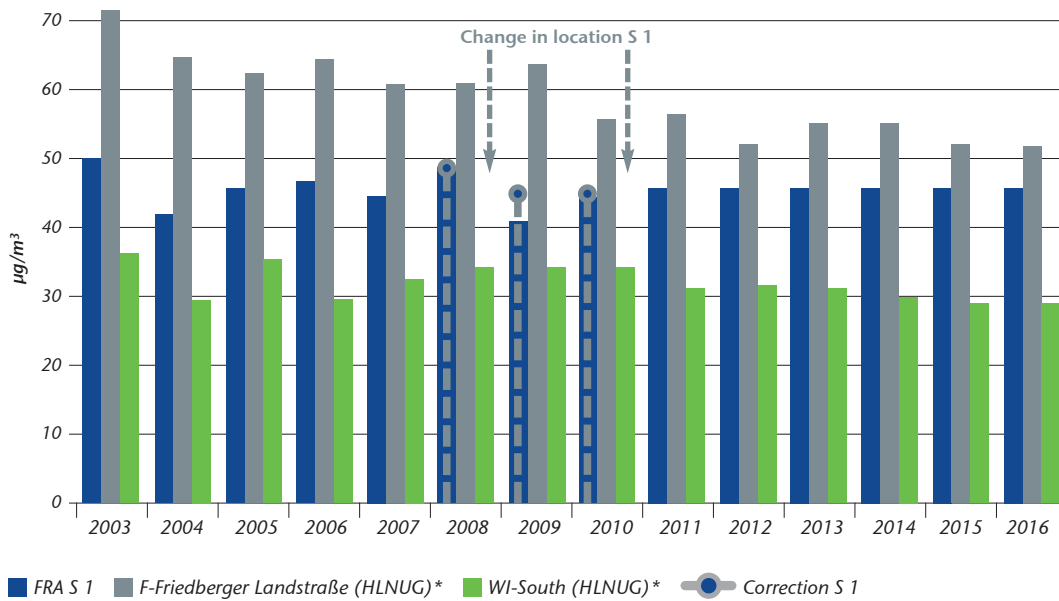
Comment: In order to improve the accuracy of calculations, the calculation has been done without increased reverse thrust (compared with idle) since 2013 and adjustments have been made to "ICAO Doc. 9889" for Auxiliary Power Unit (APU).

Air pollutants at Frankfurt Airport

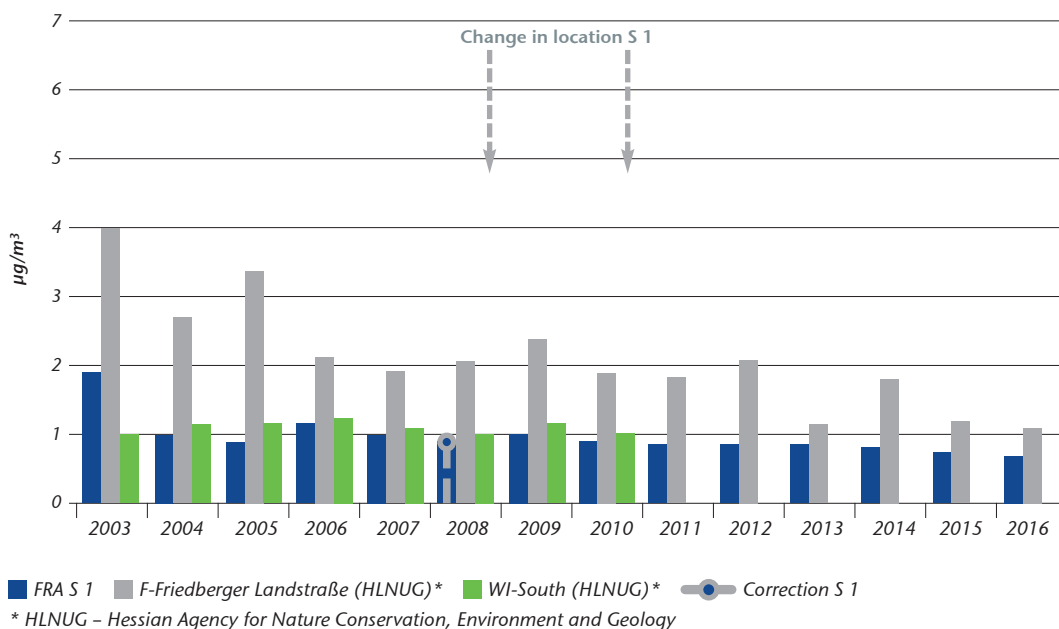
The results of the air quality measurements at Frankfurt Airport fit well into the existing knowledge about the regional pollution situation and since the beginning of continuous monitoring in 2002 pollution has been at the level of the urban surroundings. Emission levels reflect the strong local influence of road traffic. Even if an impact

from aircraft emissions is assumed, this impact is very difficult to identify using measuring instruments. Even after the expansion of the airport, pollutant concentrations have tended to come down, in line with expectations in the forecasts used for the expansion licensing procedure.

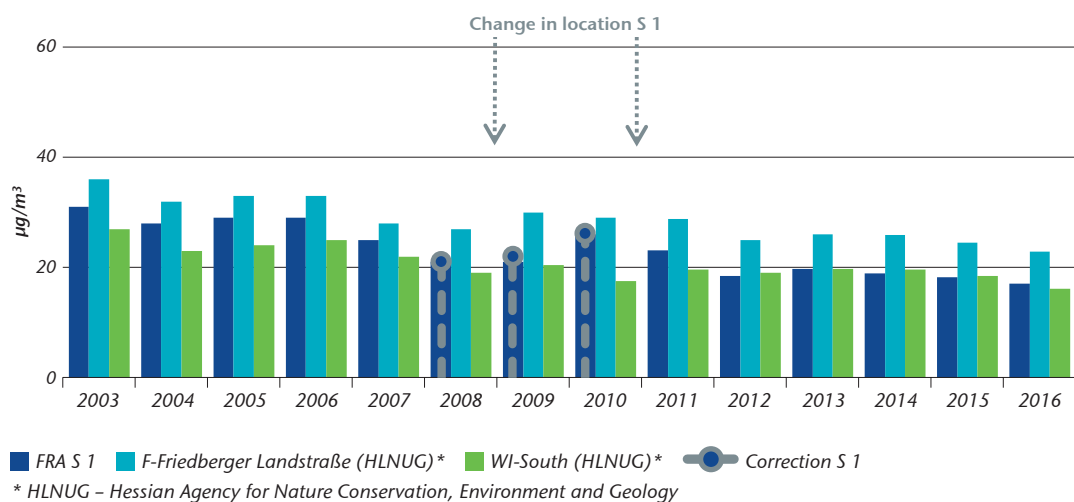
Comparison of annual averages for NO₂



Comparison of annual averages for benzene

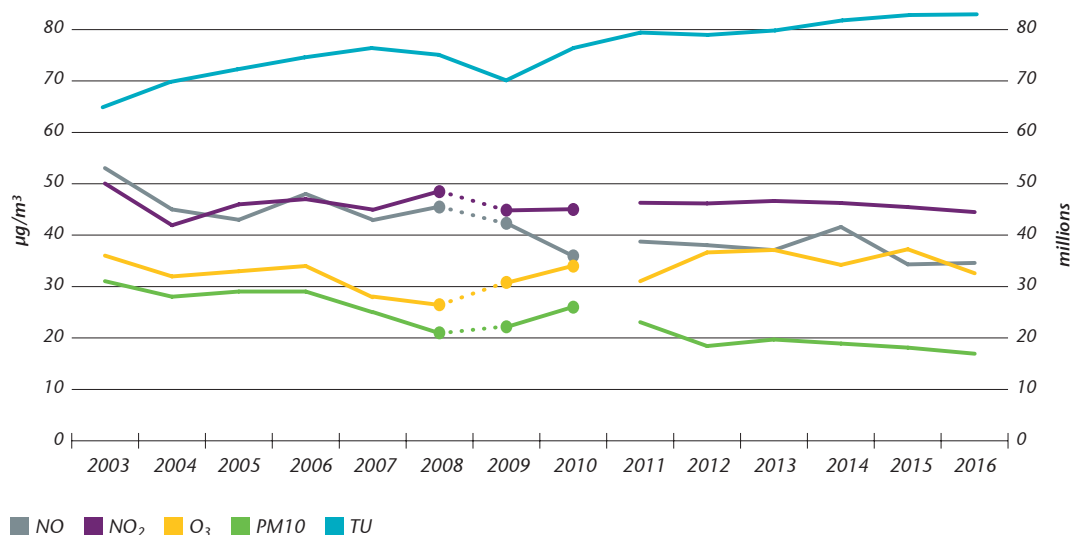


Comparison of annual averages for PM10

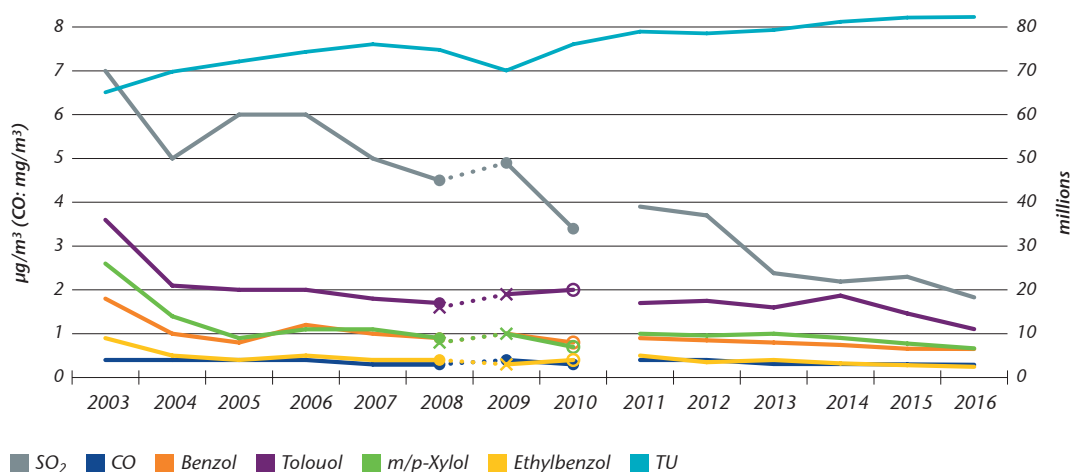


Development of the annual average (Station S1) and traffic units (TU)

Annual time series (a)



Annual time series (b)



Solid lines: Measured values of a location, dotted lines: small-scale relocation 2008/2009, 2010 Relocation around 1000 m in north-northeastern direction

Thick points: Correction of data gaps at the site, crosses: low data volume at the location without correction, circles: data from two locations without correction possibility

Management initiative

Air pollutants are measured continuously

Air pollutants have been continuously recorded on the airport site by two measuring stations since 2002. Measurements have been taken at up to five measuring stations. The Fraport parent company publishes detailed information on air quality in its Air Quality Annual Report

(<http://www.fraport.de/de/nachbarschaft-region/entwicklung-standort-fra-umwelt/luftqualitaet.html>).

Calculation of pollutant emissions caused by air traffic

The contribution of air traffic to the total concentration of air pollutants at Frankfurt Airport is determined using the LASPORT dispersal model. This involves the latest traffic and individual aircraft data being evaluated. This data platform provides nuanced information for the assessment of the air-pollution situation which can be used to provide transparent communication.

Emissions from stationary sources (e.g. heating, emergency power units) and the ground processes were determined during the course of the planning approval procedure for expansion of the air-

port for the baseline year 2005 and as a forecast for 2020. These data were continued for the reference year 2013 as preparatory work for the Rhine-Main Clean Air Plan. A further update is currently being carried out for the project of the Federal Environment Agency to investigate ultra-fine particles in the area surrounding the airport. The plan is for this work to form the basis for an annual emission inventory in future.

Fraport charges emission-dependent takeoff and landing fees

The emission-related charge is levied for each emitted kilogram of nitrogen oxide equivalent (= emission value) in the standardized landing and takeoff cycle of an aircraft. Airline companies are charged for each landing and takeoff. The necessary details of aircraft and engine type are determined on the basis of an approved fleet database.

Other management initiative

The issue "deployment of alternative drives" is described in the section on climate gases because it also affects the reduction of CO₂ emissions.



Environmental aspect: Impacts on biodiversity

Type of environmental aspect	Direct	
Assessment of the environmental aspect	Materiality:	High
	Controllability:	Good
Responsible process owner(s)	Fraport parent company	
Indicator(s)	Frankfurt Airport: Surfaced areas [km ²]	

Trend(s)

The total owned land of Frankfurt Airport amounted to 22.97 km² at the close of 2013. 10.65 km² of this area was surfaced.

Management initiative

Environmental measures for airport expansion have been almost entirely implemented

Following the resolution passed by the Hesse Ministry of Economics, Transport and Regional Development (HMEWVL) on December 18, 2007, ecological measures for the expansion of the airport were defined in the Zoning Plan to compensate for the loss of the area and for human interventions in the natural environment and landscape in the form of mitigation, coherence and species support measures.

The loss of an area of 282 hectares of woodland required for the expansion measures was mitigated by planting a new area of woodland measuring 288 hectares. This measure is divided into 13 reforestation areas in the Frankfurt/Rhine-Main region which have now been replanted and are currently in a development growth stage lasting a number of years.

As mitigation for the human interventions in the European NATURA 2000 network of conservation areas across Europe, comprehensive forest improvement measures are implemented at about 2,000 hectares of existing woodlands located close to the airport (state-owned forest, Kelsterbach Forest, Fraport's own woodlands). These coherence measures will also help to retain this coherent (= integrated) network of conservation areas. This is being done by active regeneration of woodlands that are far from their natural state, e.g. coniferous forests, and converting them to areas that resemble natural woodlands. As well as removing plants that are not indigenous, commercial exploitation will no longer take place in future.

One of the compensation measures implemented was the restoration of a former ammunition depot at Mörfelden-Walldorf covering some 100 hectares to its natural habitat. This measure means that this area is increasingly providing the local population with a recreation amenity. The former bunkers

were dismantled and various measures have been implemented under species-protection legislation, such as the reinstatement of amphibian ponds and the conversion of two bunkers to winter quarters for bat populations. A particularly rewarding outcome is provided by bats already populating the newly established habitat in the first year.

On the airport site itself, the spaces between the newly built taxiways and the new runway are being developed to create nutrient-poor grasslands (approx. 85 hectares) and dwarf shrub heathlands (approx. 132 hectares). Indigenous seeds for this planting program were gathered on the airport site itself and in the surrounding area before being distributed on the areas being sown. Another project involved the conversion of sandy grassland and sand heaths from the former Kelsterbach transformer station to open spaces in the Kelsterbach Forest (approx. 2 hectares). This project was a success and the biotopes also underwent positive development with the growth of such protected species as maiden pinks and buck-thorn.

Success of ecological measures in the course of airport expansion is reviewed and documented

The implementation of the ecological measures described here and all other similar measures associated with the expansion of the airport is documented in the course of environmental monitoring every year. A specific focus of the verification assessment is on the feasibility of the measures and the successful outcome of their implementation. Monitoring is also done to establish the effectiveness of the avoidance and minimization measures implemented under statutory legislation in advance of construction work to protect species such as stag beetles, bats, sand lizards, natterjack toads and other protected species. The success of the measures is demonstrated by the species becoming established in the habitats and the emergence of new generations.

The monitoring program established the following results in 2016:

- The Kelsterbach Forest continues to be a habitat for the middlespotted woodpecker and the black woodpecker. There have been no changes in the breeding behavior of the observed species. The nest boxes set up in the surrounding woodland areas (approx. 320 boxes) are being populated by the birds.

- 13 species of bat (e.g. Bechstein's bat, greater mouse-eared bat, Natterer's bat) have been identified. Since 2012, the number of previously known bat colonies has increased to eight. The artificially drilled tree hollows (350 hollows), the hanging flat bat boxes and the overwintering boxes (685 boxes) are being increasingly populated by the bats and used as roosting sites.
- Large numbers of amphibian species such as natterjack toads and agile frogs are increasingly being identified in new stretches of open water. A high rate of reproduction has also been verified for sand lizards in the settlement areas.

You will find further information at:

<http://www.fraport.de/de/unternehmen/verantwortung/dimensionen/umwelt.html>

Ecological structural diversity at the airport site is improved

All unsurfaced areas at the airport are greened. Approximately 500 hectares of green space between the southern parallel runway system and Runway 18 West for aircraft takeoffs only are extensively managed. This policy has been pursued since the mid-1980s. Mulch mowing is done on an annual basis to a height of 25 cm of grass. As a rule, the areas are not irrigated or fertilized. The trial with strip and impoverishment mowing has been worthwhile so that this mowing cycle will continue to be used more vigorously over the upcoming years.

Ensuring the sustainable use of woodlands

A large proportion of Fraport's own woodlands are not exploited as compensation for the negative impacts resulting from expansion of the airport. Other woodland areas are primarily used for climate protection and as recreational amenities. There is virtually no timber production.

Bees are used for biomonitoring

The Fraport parent company finances a project involving the use of bees for environmental monitoring at the airport and at two reference sites in the Hintertaunus mountain areas and along the A5 freeway. Samples of honey, pollen and mosses are analyzed for relevant environmentally toxic metals and polycyclic aromatic hydrocarbons.

The samples analyzed to date indicate that verified concentrations at the airport complex are similar to residues at comparable sites. All values are well within the safe limits defined for human consumption. The development of bee populations and the honey yields are very good and similar at all three locations.

Fraport Environmental Fund sponsors ecological projects in the Frankfurt/Rhine-Main region

Since 1997, the Fraport parent company has been using its voluntary Environmental Fund to support nature and environmental conservation projects, ecological research projects, and environmental education programs in the Frankfurt/Rhine-Main region. Since the environmental fund was established, more than 950 projects have been funded to the tune of nearly 37 million euros in the period between 1997 and the end of 2016 – these projects range from purely conservation measures, such as maintaining orchard meadows or creating new stepping stones, through environmental education campaigns (e.g. exhibitions, field trips and advanced training programs), to the awareness campaign about the biowaste bin in German households.

The Rhine-Main Regional Park makes a major contribution to the appeal of the region and is by far the biggest project sponsored by the Environmental Fund. Alongside this project, the funding focus of the fund for some years has been on preserving and promoting biodiversity in the region as well as climate protection.

Minimizing the risk of bird strike with biotope management

Collisions between aircraft and individual birds and particularly with flocks of birds are a source of hazard. Since about 70 percent of all bird strikes occur at airports and in their immediate vicinity, Fraport as an airport operator is committed to keeping this risk to a minimum. Contrary to the approach at many international airports, Frankfurt focuses on a special system of biotope management. This involves taking action to minimize or avoid opportunities for breeding, resting and feeding. The bird-strike rate was 4.9 cases per 10,000 aircraft movements in 2016.



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Environmental aspect: Water consumption

Type of environmental aspect	Direct* und indirect**		
Assessment of the environmental aspect	Materiality:	Moderate*	Moderate**
	Controllability:	Medium*	Medium**
Responsible process owner(s)	Fraport parent company: network operators, consumers Third parties at the airport: consumers		
Indicator(s)	Frankfurt Airport: volume of drinking and service water (absolute, volume per traffic unit) [m ³ , l/traffic unit] Fraport parent company: volume of drinking and service water (absolute, volume per traffic unit) [m ³ , l/traffic unit]		

Trend(s)

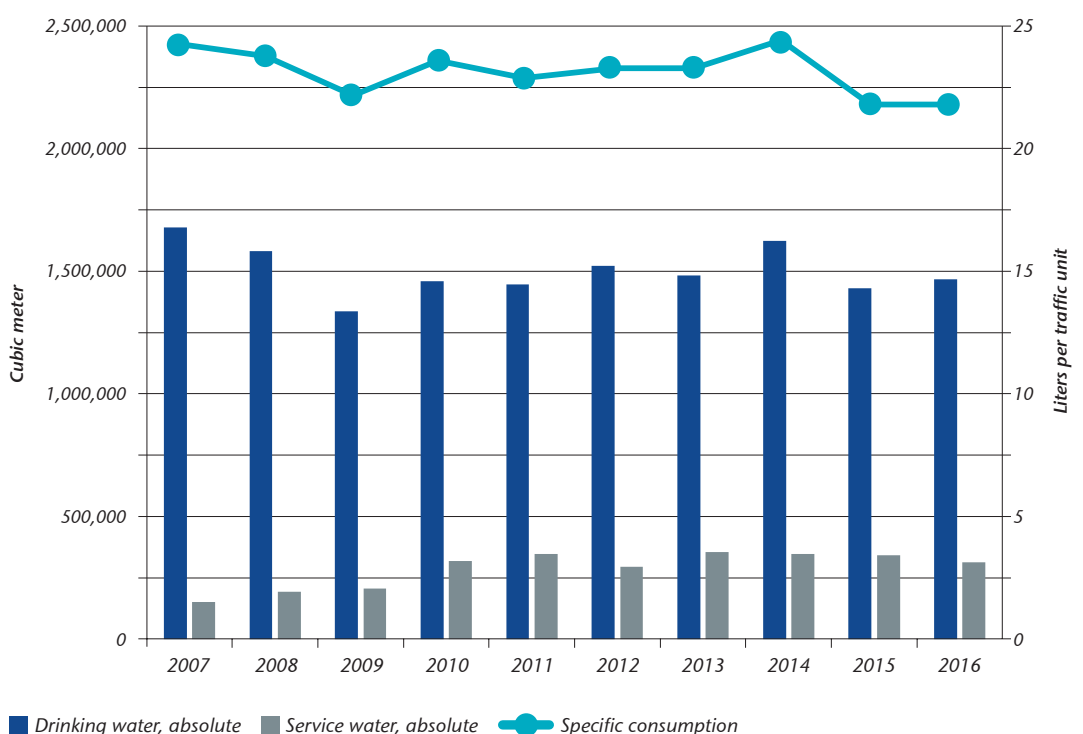
Water consumption at the airport

In 2016, a total of 1.782 million m³ water was consumed at Frankfurt Airport (2015 1.774 million m³). The volumes of drinking water or service water included here amounted to 1.5 million m³ or 0.3 million m³ respectively in 2016. The increasing use of service water during recent years (2013: 0.355 million m³) means that the consumption of drinking water has fallen. This has mainly been achieved by the increasing use of rainwater, treated water from the River Main and Fraport's own groundwater (well water). The percentage of service water consumed by comparison with total water consumption amounted to 17.6 percent in 2016. The consumption of drinking water per traffic unit amounted to 21.8 liters in 2016.

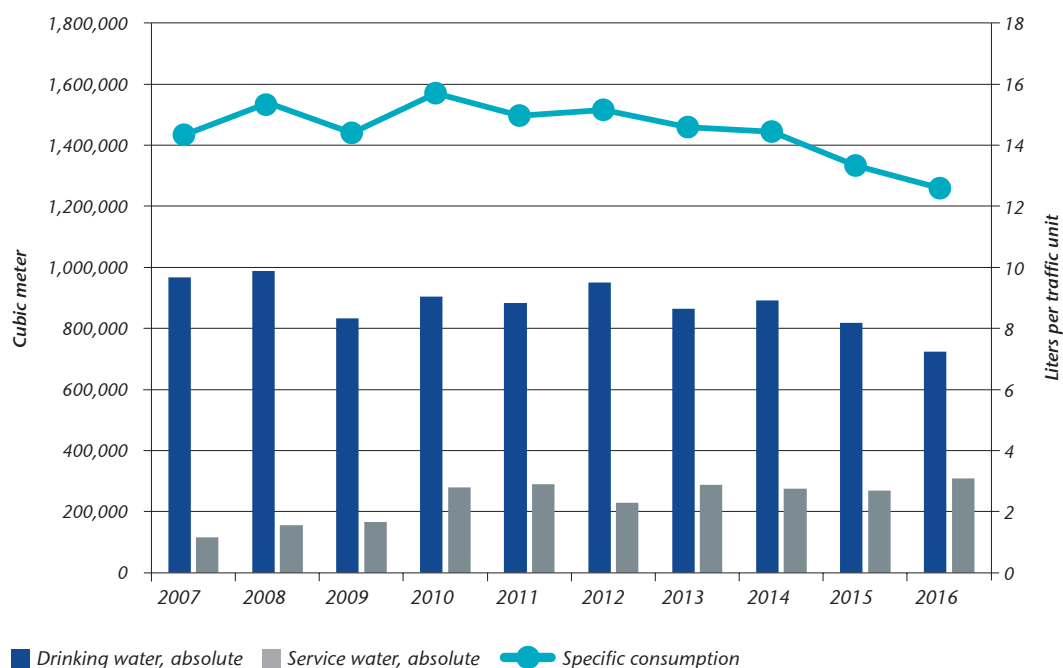
Water consumption by the Fraport parent company

The total water consumed by the Fraport parent company amounted to 1.031 million m³ (2015 1.088 million m³) in 2016. The drinking water or service water consumption included here amounted to 0.723 million m³ or 0.308 m³ respectively in 2016. The percentage of service water consumed has been increased from 11% in 2007 to 30% in 2016. The water consumption per traffic unit amounted to 12.6 liters in 2016, this being also an improvement compared with previous years in spite of the expansion of infrastructure.

Absolute consumption of drinking and service water and total water consumption per traffic unit at Frankfurt Airport



Absolute consumption of drinking and service water and total water consumption per traffic unit at the Fraport parent company



Management initiative

Consistent expansion of the use of service water

Fraport operates several rainwater treatment plants located on the site of CargoCity South and in Terminals 1 and 2. The new Pier A-Plus has also been equipped with a rainwater treatment plant. The service water is sourced from rainwater and groundwater (well water). When rainfall is low, purified water from the River Main is used. The service water is sourced through separate supply networks and supplied for sprinkler systems, toilet flushing and for watering landscaped areas. There is a complete service-water supply system in CargoCity South. In the north of the airport, Terminals 1 and 2 are supplied with service water. The supply of service water in Terminal 1 and the

neighboring office buildings is still undergoing expansion.

Water-saving technology established as standard

The biggest savings have already been made by installing water-saving aerators in sink taps and flush-stop devices for toilet flushes. These measures are now mainstream. Significant volumes of drinking water have also been saved in the past by converting from disinfection with chlorine to electrochemical disinfection of the tanks used in vehicles supplying water to aircraft. Other consumption residues have resulted from the introduction of systems operating with circuits in vehicle washing equipment.



Environmental aspect: Wastewater

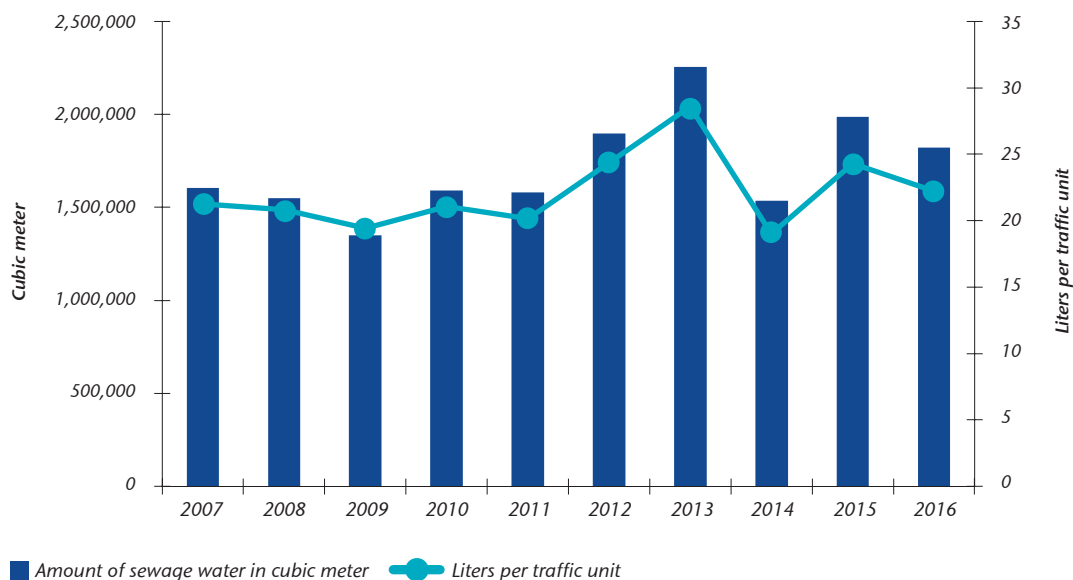
Type of environmental aspect	Direct* and indirect**		
Assessment of the environmental aspect	Materiality:	High*	High**
	Controllability:	Medium*	Medium**
Responsible process owner(s)	Fraport parent company: Operation and use of the drainage networks and other wastewater systems Third parties at the airport: Use of wastewater drainage networks and other wastewater systems		
Indicator(s)	Frankfurt Airport: volume of sewage water (absolute, relative to the traffic unit) [l, m ³ /traffic unit])		

Trend(s)

The sewage water at Frankfurt Airport in 2016 amounted to 1.82 million m³ and this was significantly lower than in 2013. The reason for this included recent milder winters with less ice and

snow. This has meant that less water was discharged containing de-icing agents into the sewage water drainage system.

Volume of sewage water at Frankfurt Airport



The volume of surface water drained is naturally subject to large fluctuations from one year to the next, depending on the annual volumes of precipitation.

Management initiative

Separation of sewage water and precipitation water relieves the pressure on sewage treatment plants

Fraport operates two separate drainage systems for sewage water and precipitation water. This offers the advantage that the capacity of the sewage systems is utilized at a more consistent rate and is not put under pressure by large volumes of rainwater. The risk of overloading sewage water drainage pipes is also avoided during storms with heavy levels of rainfall.

The sewage water system has pipework measuring some 100 km in length. The system accepts all the discharges from sanitary facilities, canteens, restaurants, tunnel washers, aircraft restrooms, and aircraft washing equipment.

The precipitation water drainage system has a length of approximately 200 km and drains the rainwater from aprons, aircraft positions, deicing areas, roads, parking lots and roofs.

Wastewater is pretreated

Grease and oil separators, and demulsification plants are positioned where wastewater is generated, for example in canteens and restaurants, and workshops and tunnel washers before the water is discharged into the drainage system. These installations limit the entry of polluting substances into the drainage channels and treatment plants.

The sewage water drains into the public drainage system at two points and is pumped to the municipal treatment plants in Sindlingen and Niederrad. Fraport operates its own sewage treatment plant in the southern section of the airport with a capacity of 100,000 population equivalents. The plant treats approx. 1,400,000 m³ of sewage water each year. The sewage water from the entire southern section is treated here together with the wastewater containing deicing agent from aircraft movement areas.

After flowing through the sludge removal tanks, rainwater from the apron and operational areas is conducted through oil separators in order to remove potential contaminants from risk areas (fuelling, maintenance, etc.). The permissible run-off volumes from the areas defined above are guaranteed by rainwater retention basins. The water is only then channeled into the River Main, the Creek Gundbach or conducted into infiltration plants when purification is completed. Systematic checks are performed to establish compliance with the specified tolerance limits.

Water management also includes the drainage systems installed at the Runway Northwest. Contrary to the drainage in the old runway system, the precipitation water from the runway for aircraft landings only and its taxiways flows along slot channels configured along the sides of traffic surfaces, where it is conducted through a network of drains 23 kilometers in length. The water is then pumped from there into two underground reservoirs, each with a capacity of 12,500 cubic meters. Subsequently, the water passes through filters with a total area of 20,000 square meters and deicing agents are removed during the winter months.

Volume of deicing agent reduced by Advanced Deicing System

The Fraport subsidiary N*ICE Aircraft Services & Support GmbH (N*ICE), responsible for deicing of aircraft, uses a mixture of polypropylene glycol and different proportions of water. We use potassium formate for deicing aircraft-movement areas at Frankfurt Airport in concentrations to match the weather conditions. Both deicing agents are easily biologically degradable within a short space of time and meet stringent environmental requirements. Precipitation water containing deicing agent from drained surfaces is retained and treated in the water treatment facilities.

Since winter 2012/13, N*ICE has been using the N*ICE Advanced Deicing System (NAD) to reduce the quantity of deicing agent in all deicing vehicles. Using separate tanks for water and deicing agent combined with a modern mixing system means that the deicing mixture used for deicing and anti-icing can be matched to the prevailing weather conditions. This method uses a higher proportion of water which leads overall to a 20 percent reduction in the amount of deicing agent required. N*ICE developed the procedure for converting the deicing vehicles in cooperation with the corresponding vehicle manufacturers. There is currently a fleet of 70 deicing vehicles. All new vehicles purchased are fitted with the new technology.

Quality assurance for wastewater with systematic checks

Systematic checks are used to monitor the quality and volumes of wastewater, in order to ensure compliance with the specified limits and exclude any risk of polluting waterways. Fraport regularly conducts measurements of chemical and physical parameters in the wastewater at the confluence points and the wastewater units in order to guarantee that no pollution occurs. The precipitation water is continuously monitored at the discharge points in the River Main and the central seepage installations.



Environmental aspect: Contamination of soil and groundwater

Type of environmental aspect	Direct* And indirect**		
Assessment of the environmental aspect	Materiality:	Moderate*	High**
	Controllability:	Good*	Good**
Responsible process owner(s)	Fraport parent company: real estate owner Third parties at the airport: former and current users of the airport		
Indicator(s)	Frankfurt Airport: Nitrate content of the groundwater at a reference sampling point (sampling point 45 to 2007, extraction well FBS from 2008 on) [mg/l]		

Trend(s)

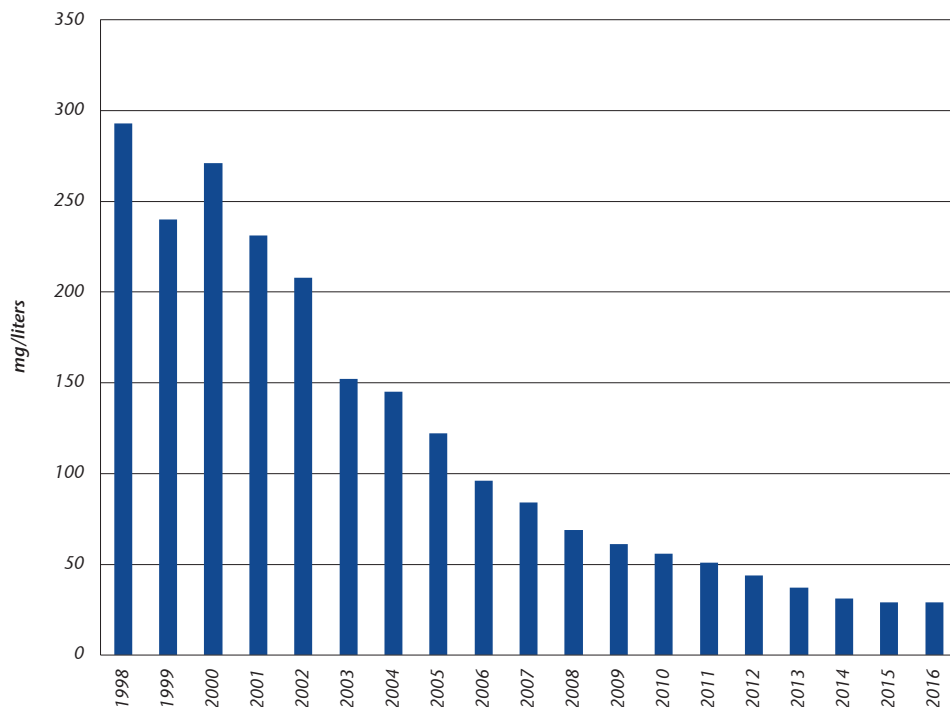
Some parts of the soil and the groundwater at Frankfurt Airport have been polluted by various uses of the site over a period of more than 80 years. Following identification of contaminated areas, a professional clean-up operator did this work, and this process is still ongoing.

During the 1970s, pollution occurred at the Lufthansa base as a result of the volatile chloro-hydrocarbons used in aircraft maintenance. The clean-up operation by Lufthansa Technik AG is currently ongoing.

The site of the former US Air Base is one of the areas where the soil and groundwater have been compromised by contamination with pollutants, and this area therefore also needs to be reinstated. This site was handed back to Fraport AG at the end of 2005.

The use of de-icing agents containing nitrogen in the 1990s along with other operating materials resulted in contamination of the groundwater with nitrates and other pollutants. In 1999, a water treatment plant became operational and removed these pollutants.

Nitrate concentration at the intake for the water treatment plant since 1998



Management initiative

Use of winter deicing agents reduced by scatter data management

Since 1990, Fraport has only been using nitrate-free deicing agents (potassium acetate, potassium formate) to avoid polluting the groundwater with nitrates. Optimum management of scatter data based on ground sensors and GPS supported sprinkle management allows the deicing agent to be precisely dispensed. This means that the use of winter deicing agents can be reduced and duplication of deicing is avoided.

Water treatment plant cleans up groundwater

Groundwater containing nitrates has been treated in a custom-built water treatment plant since 1999. The average nitrate pollution at the intake for the water treatment plant is currently still approximately 45 mg/l at all the measuring stations. The target purification value to be achieved is 37.5 mg/l. The plant therefore continues to be operated and is also used to remove additional pollutants.

The water treatment plant is the only one of its type and size in Germany. The plant operates on the principle of a sewage treatment plant but purifies groundwater with a throughput of 320 cubic meters an hour. A special feature of this plant is that the purified water is not channeled into a surface water body but is returned to the groundwater by an infiltration process.

Technical monitoring of the drainage systems and run-off surfaces

Fraport performs a process of regular monitoring by expert auditors to establish the structural integrity of the drainage systems and surfaced

areas where water-polluting substances are used in order to protect the soil and groundwater against pollutants. Any defects identified are remedied.

Monitoring groundwater quality at 550 measuring stations

The chemical composition of the groundwater is monitored by 280 groundwater monitoring stations located at Frankfurt Airport and a further 270 groundwater monitoring stations located in the immediate vicinity. The groundwater quality and groundwater level is determined at monitoring stations defined by the regulatory authorities. The data is processed in a groundwater database.

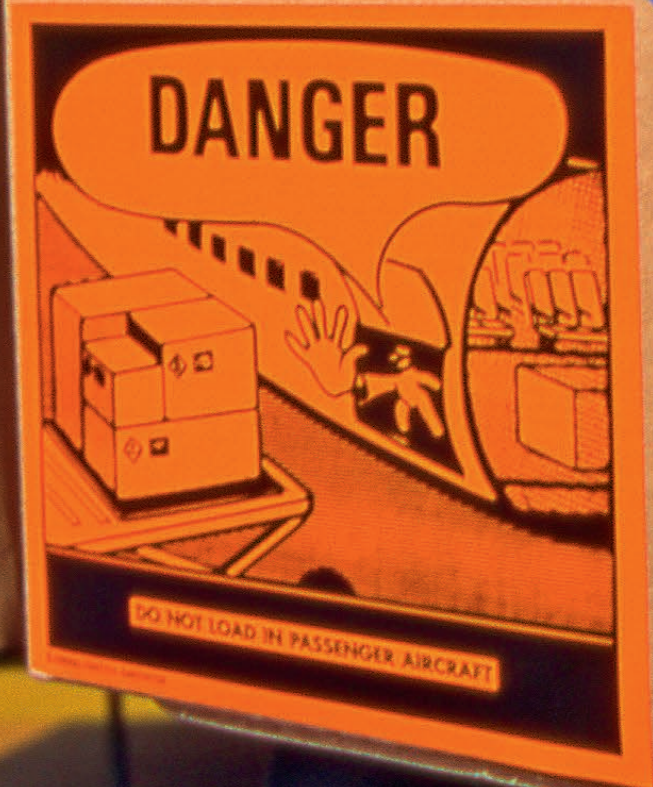
As the airport has expanded, Terminal 3, aprons and other buildings have been created on the site of the former Rhine-Main US Air Base in the southern section of the airport. Contamination of the soil is known to have occurred in this area. The pollution is monitored at a network of groundwater monitoring stations in close cooperation with the responsible regulatory authorities. Any measures necessary are introduced on the basis of the results.

Waterways alarm plan is activated in a pollution incident

If pollution occurs in the groundwater, the waterways alarm plan ensures that this pollution is immediately reported and remedied. The alarm plan is a constituent element of the Emergency Response Manual of Fraport AG for Frankfurt Airport (FRA Not). Immediate measures are instituted and implemented by the Airport Fire Department of Fraport AG.

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Environmental aspect: Dangerous goods* and hazardous materials**

<i>Influence of the Fraport parent company</i>	<i>Direct* and indirect**</i>		
<i>Assessment of the environmental aspect</i>	<i>Materiality:</i>	<i>Moderate*</i>	<i>Moderate**</i>
	<i>Controllability:</i>	<i>Medium*</i>	<i>Medium**</i>
<i>Responsible process owner(s)</i>	<i>Fraport parent company and GCS and FraGround: Use of hazardous substances, handling of dangerous goods</i> <i>FCS: Handling dangerous goods</i> <i>N*ICE: Aircraft deicing</i> <i>Third parties: e.g. airline companies, freight forwarders, ground handlers</i>		
<i>Indicator(s)</i>	<i>Frankfurt Airport: Handling dangerous goods at FCS [t], discrepancies and damage to packaging during the handling of dangerous goods [number]</i>		

Trend(s)

Dangerous goods

The cargo volume of Frankfurt Cargo Services GmbH (FCS), a subsidiary of Fraport AG, amounted to 637,670 tons in 2016. The proportion of dangerous goods in this volume amounted to 12,045 tons not including class 7 (radioactive). The volume of class 7 amounted to 2,028 packages.

In 2016, there were 15 irregularities at FCS, i.e. nonconformities with the regulations for handling dangerous goods. These included two cases of damaged packaging which required the intervention of the Fire Department. The other packages involved missing documentation or declarations.

The ground handling services at Fraport AG experienced 99 irregularities in 2016 when handling dangerous goods, including two material releases, which required the deployment of the Airport Fire Department.

Hazardous substances in the operations of the Fraport parent company

The majority of hazardous substances are used by property and facility management in the vehicle workshops, the paint shop, and the printing facility. The range of products includes antifreeze, engine oil, coolants, gearbox and hydraulic oils, varnishes, paints, through to soap cartridges. Fuels are handled at the company filling stations. The volume in 2016 amounted to 10.5 million liters in 2016 and this was by far the largest proportion of hazardous substances.

Management initiative

Dangerous goods

Precautions for emergencies are planned and trained at all levels

Emergency procedures for the transport of dangerous goods are documented in Fraport's EMERGENCY PLAN (FRA NOT). Emergency plans are drawn up on the basis of this manual and emergency exercises are carried out on a regular basis. Regular training, promotion of enhanced awareness among employees to potential risks, and continuous exchange of information between cargo handling companies complete the precautionary measures.

As soon as even minor external damage is detected in containers for dangerous goods, the Fraport Safety and Security Control Center and the Airport Fire Department are alerted. They possess the necessary training and special equipment to respond appropriately.

Fraport trains employees who are involved in the transport and storage of dangerous goods and employees who use hazardous materials at their workplace. Precise compliance with national legislation and international regulations is the top priority. Basic practical training and regular career training for more than 5,000 employees form the platform for professional implementation of statutory legislation and regulations.

FCS minimizes the risks of hazardous goods by safe storage and documentation

A dangerous goods warehouse facility is operated by FCS in CargoCity South for all classes of hazardous goods, including radioactive materials, in conformity with the Federal Impacts Control Act (BlmschG). Employees at this facility check the physical properties and the documentation of each dangerous goods consignment in conformity with the regulations of ICAO T.I. (International Civil Aviation Organization – Technical Instructions) and IATA DGR (International Air Transport Association – Dangerous Goods Regulations) as well as ADR ("Accord européen relatif au transport international des marchandises Dangereuses par

Route", in English "European Agreement concerning the International Carriage of Dangerous Goods by Road"). There are central storage facilities for radioactive materials.

Dangerous goods and radiation protection officers monitor the handling of dangerous goods

The dangerous goods and radiation protection officers at the Fraport parent company are responsible for monitoring compliance with rules and regulations governing the transportation, acceptance, delivery, temporary storage, packing, unpacking, loading, and unloading of dangerous goods. The same applies to the FCS which is assisted by the "Medical Airport Services".

Hazardous materials

Chemical products are checked before procurement

Since 1990, Fraport has implemented a product evaluation procedure that reviews all chemical products before they are purchased. This process involves the responsible employees from the relevant areas and the users. An assessment is conducted to assess whether chemical products can be replaced by a more environmentally friendly product, or the relevant operational process can be discontinued or modified. This product evaluation is also done by the Fraport parent company for other companies at Frankfurt Airport. The focus here is on cleaning companies. Incorporating outside companies within this process is intended to ensure that no "inadmissible" hazardous materials are used at Frankfurt Airport.

N*ICE uses environmentally friendly technology for deicing aircraft

The use of aircraft deicing agent is reduced by a 20% increase in the water content for each aircraft deicing operation. This is achieved by using NAD technology (N*ICE Advanced Deicing System). The system has three separate tanks for water, Type I and Type IV and by using two independent proportional-mix systems which permit deicing agents to be used precisely tailored to the specific weather conditions.



Environmental aspect: Waste

Type of environmental aspect	Direct* and indirect**		
Assessment of the environmental aspect	Materiality:	High*	High**
	Controllability:	Medium*	Medium**
Responsible process owner(s)	Fraport parent company: waste generators and waste owners Third parties at the airport: waste generators and delivery of waste to the Fraport parent company Disposal companies: sorting, recycling, recovery, disposal		
Indicator(s)	Fraport parent company: – Total quantity of waste (not including excavated soil and building rubble) [t] – Quantity of hazardous waste [t] (see accounting principles for the environmental situation) – Quantity of non-hazardous waste [t] (see accounting principles for the environmental situation) – Total recovery of waste [recoverability rate in %]		

Trend(s)

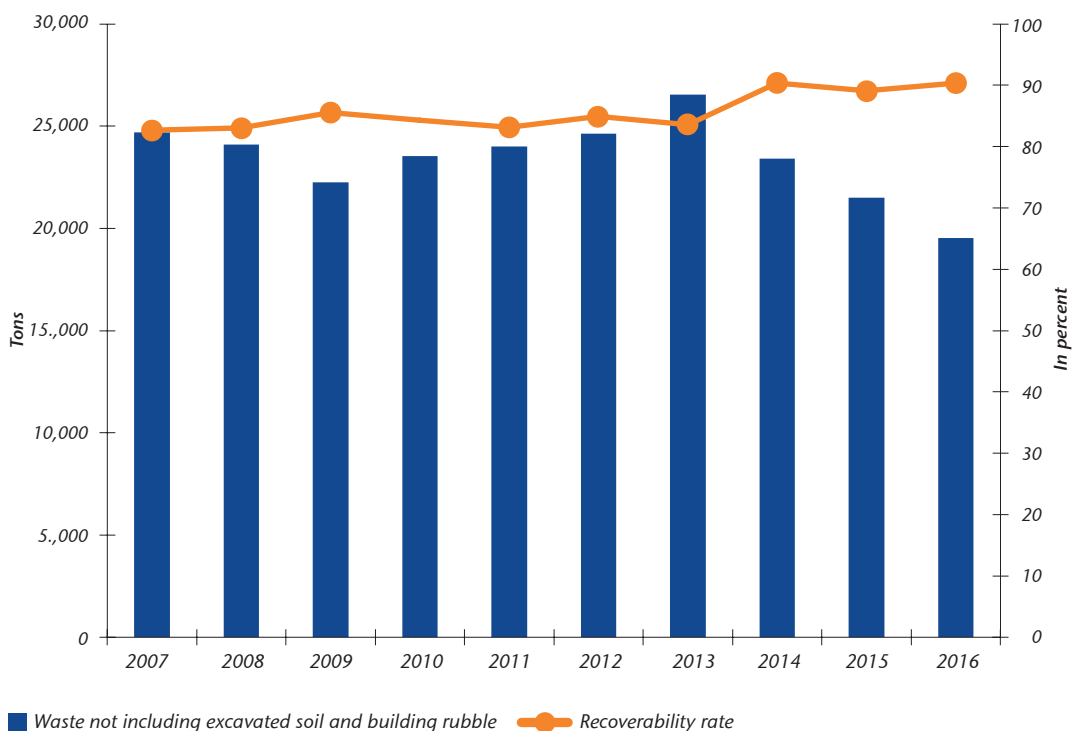
The total volume of waste disposed of (not including soil and building rubble) by the Fraport parent company has declined over recent years and amounted to 19,520 tons in 2016. The development of the total annual volume of waste is firstly correlated with development of the number of traffic units and secondly depends on a series of other effects. These include:

- Start-up/shutdown/acquisition of equipment (e.g. nitrate removal system, rainwater reservoir, sewage treatment plant)

- Maintenance cycles for wastewater systems (changes in occurrence of residues from year to year)
- Change in processes (e.g. disposal of de-icing agents, disposal of cabin waste in a different area of responsibility)

The recoverability rate remained at a high level of approx. 90.4% in 2016.

Total amount of waste and recoverability rate (not including excavated soil and building rubble)



Management initiative

Prozess optimized for paper collection on the apron, including its disposal

Since October 2015, the cabin cleaners on aircraft have collected separated paper and taken it to special returnable containers on the apron. The containers are then transported directly to a paper recovery company which recycles the paper completely.

Consistent separation of waste permits high recoverability rate

The guiding principle of Fraport waste management is to recycle unavoidable waste as much as possible. Fraport separates waste including paper, glass, packaging waste (DSD green-dot waste) and residual waste to assist in recycling. This collected waste is either taken to sorting facilities where any unusable materials still present are sorted out and the reusable materials obtained are then forwarded to recycling or sent to a regional waste incineration plant. The energy generated in this process is used to power district heating and electricity supply in an environmentally friendly co-generation process.

Hazardous waste is recovered or disposed of in an environmentally compatible way

The hazardous waste created at Fraport is also collected separately and channeled away for recovery as far as possible. If there are no options for recovery, this waste is disposed of professionally in a suitable incineration plant or may be disposed of by chemical and physical means in a treatment plant.

Fraport waste management guarantees professional disposal

Waste Management at the Fraport parent company ensures professional disposal for approximately 60 different types of waste generated at Fraport. In this connection, Fraport maintains close contacts with authorities, disposal companies, other companies and universities. New know-how is incorporated into routine procedures as a result of benchmark activities with other waste generators.

Monitoring and advice provided by the operational officer for waste

The Fraport parent company has appointed a Waste Officer. The functions of this officer include the provision of advice, promotion of low-waste procedures, internal and external monitoring and raising awareness and training for employees.

Key for the assessment of materiality and controllability of the environmental aspects

Categories	Materiality
Low	In standard operation, no or negligible quantities occur/no or negligible quantities are implemented or if an irregular operating status occurs there is no material risk
Moderate	In standard operation, minimal to moderate quantities occur/ minimal to moderate quantities are implemented or if an irregular operating status occurs there is a risk but it is classified as low
High	In standard operation, large quantities occur/large quantities are implemented or the risk in the case of non-standard operation is high
Categories	Controllability
Poor	Difficult, can only be changed with a high level of technical or organizational input or under the responsibility of third parties
Medium	Medium, can only be changed with an enhanced level of technical or organizational input, technology may not (yet) be available
Good	Easy, can be changed without high level of input

Status of the Environmental Program 2014 to 2017, supplemented and modified in 2015 and 2016

The Environmental Program 2014 described the most important targets and measures of the Fraport parent company, N*ICE, FCS and Energy Air for Frankfurt Airport up until 2020 and beyond for the issues of noise abatement, climate protection, intermodality, air quality, nature conservation and protection of resources.

The measures of the Fraport parent company are not particularly marked.

The measures of Fraport Cargo Services GmbH are marked with FCS, those of N*ICE Aircraft Services & Support GmbH are marked with N*ICE and those of Energy Air GmbH are marked with Energy Air.

Key for status:

 Measure fulfilled > 90% to 100% or established as a continuous process

 Measure continues to apply in the Environmental Program 2017 and/or measure partly fulfilled

 Measure could not be implemented

The environmental program of the Fraport parent company is shown in abbreviated form in the sustainability program.

Noise abatement

Target	Measure	Deadline	Status June 2017
Achieving a lower number of people impacted by aircraft noise than specified in the expansion plan with 701,000 aircraft movements (night protection zone = 183,026 residents, day protection zone 1 = 28,980 residents)	Further development of selected runway and route usage (Dedicated Runway Operations, DROps) to provide noise respite periods for residents	End of the winter schedule 2015/16	 – Measure for takeoffs implemented (DROps early morning) since winter schedule 2014/15. – Seven-hour noise respite periods since 30 May 2016 in normal operation. – Measures were successfully implemented More information at: http://www.fraport.de/de/nachbarschaft-region/schallschutz/aktiver-schallschutz.html
	Raising the approach angle to 3.2° with ILS (Instrument Landing System) for regular operations also on the new Runway Northwest	End of 2014	 The procedure was brought into regular operations with the start of the winter schedule 2014/15. The measure was successfully completed.

Noise abatement (continuation)

Target	Measure	Deadline		Status June 2017
Achieving a lower number of people impacted by aircraft noise than specified in the expansion plan with 701,000 aircraft movements (night protection zone = 183,026 residents, day protection zone 1 = 28,980 residents)	– Introduction of a system for satellite-based precision approach procedures (GBAS- Ground Based Augmentation System) – Development of GBAS-based noise-abatement approach procedures	Mid-2014		– GBAS was inaugurated in September 2014. Trial operations with ILS look-alike approaches (3.0°) have been concluded. – Launch of GBAS 3.2° approach on all runways in both operating directions with supporting monitoring has been successfully concluded. A prerequisite for use is the corresponding technical equipment for aircraft. Fraport planned to incentivize upgrading with GBAS in 2017 via the airport charges structure in order to increase the use of this system. As a member of the SESAR subproject, Fraport is committed to the definition and testing of new, GBAS-based approach procedures, and also supports research projects, e.g. SESAR AAL (Augmented Approaches to Land). Both projects were successfully concluded.
		March 2017		
Improvement in the noise situation for the residents affected	Offers made to residents to purchase their residential property under the Casa 2 Program in the transition zones I + II	2014 (application deadline for submission)		The application deadline expired in October 2014. All applications are then processed. This brought the program to a conclusion. – Purchased residential properties: 268 – Compensation payments made: 341
	Allocation of funds to implement passive noise abatement measures for private households and public institutions eligible under the Regional Fund	Dependent on the applicant implementing the construction measures		Funds provided by Fraport are fully available for use by the Regional Fund. The measures are essentially implemented by the Darmstadt Regional Council. Fraport paid all the funds provided into the regional fund. The application period for those entitled to apply for funding ran until the end of 2017.
	Continuation of the dialog with stakeholders from the region in the "Airport and Region Forum" on development of further measures	Unlimited		– The cooperation in all relevant committees of the Airport and Region Forum (FFR) is being continued. – Current focuses are: monitoring of measures that have already been implemented, arranging, checking and agreeing measures for a second package of measures is currently under way.
	Support for the noise impact study carried out by the Environmental and Neighborhood House	2015		The main part of the study was published in October 2015 and Fraport continues to support it. The results were communicated at regional and national level. The study reports and the compilations of results have been published on the website of the Environmental and Neighborhood House for the benefit of any interested members of the general public. http://www.laermstudie.de/wissen/norah-wissen/

Climate protection

Target	Measure	Deadline		Status June 2017
Reduction of CO ₂ emissions per traffic unit (TU: one passenger with baggage or 100 kg of airfreight or air mail) by 30%, from 3.7 kg/TU in 2005 to 2.6 kg/TU in 2020 (Fraport parent company, Scopes 1 and 2 GHG Protocol) ¹	Energy optimization in portfolio buildings operated by the Fraport parent company – In the terminals – In office and service buildings	2020		– The measures carried out at the terminal: upgrading ventilation control centers, optimizing air throughputs, switching off pumps, and lighting control. Potential achieved approx. 12,100 t CO ₂ /year – Measures carried out in service and administrative buildings, optimization of hydraulics and controls for cooling control circuits, optimization of air-conditioning systems, regulation of air-control system based on weather forecasts. Potential achieved 1,800 t CO ₂ /year
	Planning and construction of the new Terminal 3 with optimized energy efficiency	2022		In phase of implementation
	Implementation of measures to achieve energy savings in the baggage conveyor system	2020		Implemented measures: Reduction of drive power in early baggage stores, distributors, feeders, modification of the controls for improved shutdown of baggage conveyor system during off-peak periods, and restriction of gliding friction by replacing belts at heighteners. Potential achieved 1,100 t CO ₂ /year.
	Use of alternative drive technologies	2020		From 2012 to 2016, a total of 33 electric vehicles were procured in ground handling services. These vehicles include electric and hybrid handling equipment, and electric vehicles and electric minibuses. Potential achieved by the end of 2016: 130 t CO ₂ .
	Integration of vehicles from Ground Services in a "Telemetry-data optimized maintenance control system (TWS)" for continuous remote enquiry of individual operating status ²	Continuous		Up to now, more than 520 vehicles have been equipped with the system. Conversion of the control of ground power units (66 units) on the basis of findings from the system has yielded savings of 260 t CO ₂ p.a. (through the avoidance of unnecessary idling). The measure has been concluded.
	Use of LED lamps	2020		LED measures were realized in the subsequent areas: in the terminals, in the underground parking garage at Terminal 2, in the CargoCity multistory parking garage, street lighting at Terminal 1, lighting for taxiways and runways (incl. software adjustment), and in service and administrative buildings. Potential achieved 1,500 t CO ₂ /year.
Reduction of CO ₂ emissions (Scope 2 GHG Protocol) in 2015 from 2,800 tons to 2,200 tons (based on the year 2013)	Equipping of freight-handling hall with LED lighting (FCS)	2014		The measure was concluded in September 2014.
Keeping the emission factor 15 percent below the national average (Energy Air)	Control of the purchasing portfolio of electricity, and – if required – optimization	Continuous		In 2016, the emission factor of the electricity purchased by EnergyAir was 28.8% below the average for the country as a whole.
	Raising the rate of purchased renewable electricity from 24.1 percent to 30 percent, if economically viable	2020		The purchase and the promotion of renewable electricity are being taken forward.

¹ The absolute and the relative climate protection factors were achieved in 2016. Fraport therefore included new climate protection targets in the new Environmental Program for 2017 to 2020. The ongoing climate protection measures will be continued under new climate protection targets.

² The telemetry-data optimized maintenance control system (TWS) enables messages and information from the telematics systems of devices to prevent or minimize damage and resulting failures. This also facilitates reduction of idle times and optimized usage of devices. The flight events will also be displayed with effect from the expansion of TWS in the summer.

Traffic

Target	Measure	Deadline		Status June 2017
Improvement in intermodal services for passengers in order to increase the proportion of originating passengers travelling to and from the airport by public transport (bus, S-Bahn metropolitan trains, regional railway, ICE high-speed trains, other long-distance trains)	Expansion of ICE Rail & Fly and code-share links in cooperation with German Rail (DB) and the airlines	Continuous		The AiRail Service provided by German Rail (Deutsche Bahn) and Lufthansa was expanded by the routes to the cities of Karlsruhe, Dortmund and Mannheim (in addition to the destinations to Cologne, Stuttgart and Düsseldorf). The product was renamed "DLH Express Rail". The measure is being continued in the course of day-to-day business.
	"Control Center" project with HOLM, TU Dresden, German Rail (Deutsche Bahn), the RMV public transportation network (Rhein-Main-Verkehrsverbund) and Fraport	2018		Coordination of airline schedules and railway timetables in order to optimize the transport service and control of the transport options available; development of a central information platform.
	Partnership in the EU sponsored project "DORA" (door to door passenger information)	2018		Phase 2, testing a pilot (Berlin-Mallorca from summer 2017)
	Linking the baggage conveyor system with the check-in counter at the AiRail terminal	2020		The measure has not yet been included in realization planning up to 2020. It has therefore been deferred in the context of the Environmental Program until further notice.
Growth in the originating-passenger market by increasing the catchment area for users of public transport	Improving and expanding scheduled long-distance bus connections from German regions which are not optimally connected to the rail network of German Rail (DB) to Frankfurt Airport.	Continuous		First expansion stage of parking lot P36 (located close to Terminal 1) completed in April 2015 for creating a central long-distance bus station. Additional expansion stages are currently being planned; they will be implemented gradually to accommodate growing offer of bus services. The measure is being continued in the course of day-to-day business.
Improvement in the inter-modal travel packages available for airport staff	Reviewing improvements in rail and bus travel options, particularly with regard to marginal night-time periods for shift workers.	2022		Long-distance rail packages and the 24-hour operation for S-Bahn metropolitan train lines linking the airport to other areas have been established. Additional optimizing measures taking account of the varying needs of different groups of employees are not possible and would not be effective. The measure has therefore been concluded.
Expansion of Frankfurt Airport's competitive position as an intermodal hub in long-distance passenger rail travel	Initiatives with important joint-venture partners for expanding the integration of the airport in Germany's Federal Transport Infrastructure Plan	2015		- Measures for new construction and expansion of the rail and road network were included in the draft for Germany's new Federal Transport Infrastructure Plan up to 2030. These measures are intended to significantly improve the landside transport connections to Frankfurt Airport. The plan was concluded in 2016. - The link from Terminal 3 to the S-Bahn metropolitan train (line S7) has now been adopted and included in the sub-urban transport plan of the RMV.
Improving bicycle traffic in the vicinity of the airport (new target)	Optimization of the overall bicycle traffic situation at Frankfurt Airport	2020		The regional authority (Regionalverband Frankfurt-RheinMain) and Fraport AG are working on plans for providing better external and internal conditions and connectivity for cyclists at Frankfurt Airport. In this connection, the partners are participating in projects sponsored by the German state and the European Union.

Air quality

Target	Measure	Deadline	Status June 2017
Reduction of emissions and air pollutants from the operation of the airport	Introduction of electric ground-handling vehicles (see also under climate protection: use of alternative-drive technologies)	2020	(See also under climate protection: use of alternative drive technologies)
Monitoring and recording of emissions and air pollutants from the operation of the airport. In the medium term: evaluation of measures aimed at reducing emissions	Development of a methodological approach for calculating emissions or air pollutants caused by – Infrastructure – Aircraft handling – Option of subsequent expansion to landside traffic	Deadline extended to 2017	The inventory from the zoning procedure was continued as preparatory work for the Clean Air Plan with baseline year 2013. A further continuation as preparatory work for the project organized by the Federal Environmental Agency (UBA) to investigate ultrafine particles in the area surrounding the airport with baseline year 2015 is in progress. Important work on drawing up an up-to-date emission inventory has therefore been concluded. In future, continuous updates will be carried out in the course of day-to-day business along with methodological refinements.

Nature conservation and resource protection

Target	Measure	Deadline	Status June 2017
Reduction in the use of drinking water and, instead, higher use of service water – in Terminal 1 (38% by 2016) – in the southern area (50% by 2020)¹	Expansion in the use of service water – in Terminal 1 – in the southern area¹	2016	In Terminal 1: – The proportion of service water in Terminal 1 was 46% in 2016. The target has therefore been achieved and the measure has been concluded.
		2020	In the southern area: – The proportion of service water used in CargoCity South amounted to 42% in 2016. The target is being continued in the Environmental Program for 2017 – 2020.
Increase in biodiversity on an area of some 250 hectares	– Launch of a two-year mowing cycle for the dry-grass habitats in the southern parallel runway system and at Runway 18 West – Introduction of impoverishment mowing in selected areas of the parallel runway system to promote nutrient-poor grass-land species	2015	– The “two-year mowing cycle” measure has been modified and replaced by strip mowing, recommended as more effective by nature-conservation specialists. – The impoverishment mowing was carried out on 40 ha in the 2nd quarter of 2016. The evaluation has revealed that the measure was successful. The impoverishment mowing will therefore be continued. The target has been achieved.
Ensuring sustainable use of forestry resources on grounds owned by the Fraport parent company	Certification of Fraport forestry resources	2015	The measure is not being pursued, since the areas of land owned by Fraport have been taken out of forestry use and certification would thus no longer make sense.
Reduction in the use of de-icing agents	– Increase in remote deicing operations using a new Remote Deicing Pad (N*ICE) – Trialing of the forced-air de-icing procedure (N*ICE) – Introduction of a simulator training course (N*ICE)	Deadline extended to 2016	A new de-icing pad came into service for the winter of 2015/2016. The measure has been concluded. On the basis of the experience obtained in previous winters, continuation of the Forced Air project was cancelled. In the summer of 2016, two simulators were purchased and simulator training was introduced for de-icing personnel.
Reduction of paper consumption	Conversion to paperless work orders and electronic invoicing (N*ICE)	2015	The conversion has been completed, acceptance is continuously increasing among the airlines.

¹ This refers to the area at the south of Runway 07R/25L. CargoCity South, the Development Area South for projects including the future Terminal 3, and maintenance facilities, for example Lufthansa, are located here.

Environmental Program 2017 to 2020

The Environmental Program for 2017 describes the most important goals and measures that the Fraport parent company and the N*ICE, FCS, FraGround, GCS and Energy Air subsidiaries have defined for Frankfurt Airport up until 2020 and beyond for the issues of noise abatement, climate protection, intermodality, air quality, nature conservation and protection of resources.

The measures of the Fraport parent company are not particularly marked.

The measures of Fraport Cargo Services GmbH are marked with FCS, those of N*ICE Aircraft Services & Support GmbH are marked with N*ICE, those of Energy Air GmbH are marked with Energy Air, those of FraGround Fraport Ground Services GmbH are marked with FraGround and those of GCS Gesellschaft für Cleaning Service mbH & Co. Airport Frankfurt/Main KG are marked with GCS.

The environmental program of the Fraport parent company is shown in abbreviated form in the sustainability program.

Noise abatement

Target	Measure	Deadline
Achieving a lower number of people impacted by aircraft noise than specified in the expansion plan with 701,000 aircraft movements (night protection zone = 183,026 residents, day protection zone 1 = 28,980 residents)	Further development of noise-related airport charges with incentives for fleet renewal.	2020
	Continuation of the dialog with stakeholders from the region in the "Airport and Region Forum" on development of further measures	Unlimited

Climate protection

Target	Measure	Deadline
Reduction of absolute CO ₂ emissions by 65 percent to 80,000 tons by 2030 (Fraport parent company, Scopes 1 and 2 GHG Protocol, baseline year 1990)	Energy optimization in portfolio buildings operated by the Fraport parent company – In the terminals – In office and service buildings	2030
Reduction of specific CO ₂ emissions by 84 percent, to 0.9 kg/traffic unit by 2030 (Fraport parent company, Scopes 1 and 2 GHG Protocol, baseline year 1990)	Planning and construction-integrated implementation of an energy-optimized new terminal (T3)	Construction-integrated implementation
	Implementation of measures to achieve energy savings in the baggage conveyor system	2020
	Expansion of the electric vehicle fleet (focus on ground handling services)	2020
Reduction and energy consumption (N*ICE)	Launch of a standby mode for dedicated onboard planning IT relating to aircraft de-icing vehicles so that the engine can be switched off during waiting times.	2018
	Instruction for users of the N*ICE administrative building to encourage effective handling and use of electrically powered equipment	2020
	Optimization of energy consumption at the de-icing agent tank facilities	2020
Reduction of air pollutant emissions and CO ₂ emissions in the vehicle fleet. (FCS)	Conversion of up to three forklift trucks to gas-operated forklifts	2020
	Analysis of the opportunities for using alternative drives (electric, gas, fuel-cell technology) also in other types of vehicle	2020
Keeping the emission factor 15 percent below the national average (Energy Air)	Control of the purchasing portfolio of electricity, and – if required – optimization	Continuous
	Raising the rate of purchased re-newable electricity from 24.1 percent to 30 percent, if economically viable	2020
Reduction of electricity consumption at the head office by 14,000 kWh each year (FraGround)	Replacing old client PCs with a new generation of client PCs	2018
* TU: one passenger with baggage or 100 kg of airfreight or air mail		

Traffic

Target	Measure	Deadline
Improvement in intermodal services for passengers	"Control Center" project with HOLM, TU Dresden, German Rail (Deutsche Bahn), the RMV public transportation network (Rhein-Main-Verkehrsverbund) and Fraport	2018
	Partnership in the EU sponsored project "DORA" (door to door passenger information)	2018
Improvement in the conditions for cycling in the area of the airport	Improving signage for cycle paths, establishing bicycle pools for employees and setting up modern cycle parking facilities	2020

Air quality

Target	Measure	Deadline
Reduction of emissions and air pollutants from the operation of the airport	Introduction of electric ground-handling vehicles (see also under climate protection: use of alternative-drive technologies)	2020

Nature conservation and resource protection

Target	Measure	Deadline
Reduction of the consumption of drinking water by increasing the use of service water in the southern zone* to 50%	Connecting new buildings to the service water network.	2020
Reduction in the use of de-icing agents (N*ICE)	Expanding simulator training for aircraft de-icing personnel.	2018
Reduction in the volume of copy paper used by 5% – 10% compared with 2016 (5065 kg) (FraGround)	Introduction of web-based monthly accounting.	2017
Reduction of the consumption of paper by 7% to 1.3 kg/K€ cost of materials for raw materials, consumables and office supplies (baseline year 2016) (GCS)	Removing desktop printers from offices and setting up a central printing station. Reduction of forms and paper documentation by digitalization of processes in the operational area.	2018
Reduction of the consumption of cleaning agents by 10 % to 10.7 kg per 100,000 m ² cleaned (baseline year 2016) (GCS)	Substitution of hazardous cleaning materials with the use of vacuum pumps and coils to deal with blockages. Use of dosing caps. Systematically raising the awareness of employees. Provision of training documents on the cleaning cart.	2017

* This refers to the area at the south of Runway 07R/25L. CargoCity South, the Development Area South for projects including the future Terminal 3, and maintenance facilities, for example Lufthansa, are located here.

Environmental Figures

Frankfurt Airport, Fraport parent company, Energy Air, FCS, N*ICE, GCS, FraGround

Aspects in accordance with the Global Reporting Initiative (GRI) performance indicators “Environment (EN)” and “Airport Operators Sector Supplement (AOSS)”, subset “environment”.

Values partially rounded; minor deviations may occur.

Traffic volume	Unit	Comment	2013	2014	2015	2016
Flughafen Frankfurt (FRA)						
Traffic unit (without transit)	TU	1, 2	78,847,384	80,756,063	81,682,024	81,827,352
Aircraft movements (landing + takeoff)	Number of movements		472,692	469,026	468,153	462,885
Therein at night	Number of movements	3	32,349	31,247	31,013	31,274
Passengers	Number of passengers		58,052,554	59,571,802	61,040,613	60,792,308
Cargo weight	t		2,127,893	2,164,660	2,114,579	2,152,477
Airfreight	t		2,048,729	2,083,495	2,030,861	2,067,257
Airmail	t		79,165	81,165	83,718	85,220
Therein FCS						
Cargo weight						
Airfreight	t		443,536	453,155	525,528	637,670
Traffic units	TU	1	4,435,360	4,531,550	5,255,280	6,376,700
Therein N*ICE						
Deiced aircraft	Number	4	9,281	2,541	4,047	4,982

¹ TU = A traffic unit is equivalent to one passenger with baggage or 100 kg of airfreight or airmail.

² Commercial and non-commercial traffic.

³ Nighttime: 22:00 to 06:00

⁴ Annual values are weather-dependent; the winter 2013/14 was very mild.

Employees	Unit	Comment	2013	2014	2015	2016
Fraport parent company	Number	1	11,985	11,694	11,401	11,164,0
FCS	Number	1	345	368	411	449
N*ICE	Number	1	42	43	41	40
FraGround	Number	1	2,934	3,224	3,267	3,025
GCS	Number	1	660	641	618	657

¹ Employees = Permanent employees + temporary staff (school children, students, interns, marginally employed and trainees) + apprentices, exempted employees, status December of every year.

Aspect: Energy						
EN3 Direct energy consumption (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
		1, 2, 3				
Purchased direct non-renewable energy sources	TJ	6	820.80	757.90	796.80	842.31
Purchased direct non-renewable energy sources	TJ per million TU	4	10.4	9.4	9.8	10.3
Natural gas	TJ		77.44	68.77	83.99	97.61
Natural gas	million kWh	3	21.51	19.10	23.33	27.12
Liquefied petroleum gas (LPG)	TJ		6.83	9.26	8.40	7.05
Liquefied petroleum gas (LPG)	m³	3	287	389	353	296
Biogas	TJ		0.0	0.0	0.0	0
Biogas	m³		0.0	0.0	0.0	0
Heating oil	TJ		94.0	78.4	93.6	115.2
Heating oil	million liters	3	2.604	2.171	2.592	3.190
Diesel	TJ		597.4	552.5	556.4	564.1
Diesel	million liters		16.781	15.520	15.630	15.850
Gasoline	TJ		41.7	45.7	49.9	54.2
Gasoline	million liters		1.287	1.409	1.540	1.670
Kerosene (Jet A1)	TJ	8	3.41	3.33	4.54	4.12
Kerosene (Jet A1)	million liters	8	0.098	0.096	0.131	0.118
Therein Fraport parent company						
Purchased direct non-renewable energy sources	TJ	2, 6	502.50	468.30	483.10	495.90
Purchased direct non-renewable energy sources	TJ per million TU	4	6.37	5.80	5.91	6.06
Natural gas	TJ		7.64	5.09	5.76	5.49
Natural gas	million kWh		2.12	1.41	1.60	1.50
Liquefied petroleum gas (LPG)	TJ		6.80	9.26	8.40	7.00
Liquefied petroleum gas (LPG)	m³		287	389	353	296
Biogas	TJ		0.0	0.0	0.0	0
Biogas	m³		0.0	0.0	0.0	0
Heating oil	TJ		87.4	73.4	87.5	110.3
Heating oil	million liters		2.420	2.032	2.424	3.056
Diesel	TJ		374.9	350.1	346.7	335.1
Diesel	million liters	5	10.532	9.834	9.740	9.410
Gasoline	TJ		23.2	28.3	32.6	36.0
Gasoline	million liters	5	0.716	0.872	1.005	1.112
Kerosene (Jet A1)	TJ	8	2.60	2.26	2.14	1.87
Kerosene (Jet A1)	million liters	8	0.074	0.065	0.062	0.054
Total energy consumption						
Renewable energy sources	%		<1	<1	<1	<1
Non-renewable energy sources	%		100	100	100	100
Therein FCS						
Purchased direct non-renewable energy sources	TJ		5.7	5.3	5.7	6.4
Diesel	TJ		5.1	4.9	5.2	5.9
Diesel	million liters	5	0.143	0.138	0.146	0.167
Gasoline	TJ		0.6	0.4	0.47	0.46
Gasoline	million liters	5	0.017	0.013	0.014	0.014
Total energy consumption						
Renewable energy sources	%		0	0	0	0
Non-renewable energy sources	%		100	100	100	100
Therein N*ICE						
Purchased direct non-renewable energy sources	TJ		19.8	7.9	14.9	13.9
Diesel	TJ		18.6	7.8	14.9	13.9
Diesel	million liters	5, 7	0.523	0.220	0.418	0.390
Gasoline	TJ		1.2	0.04	0.06	0.05
Gasoline	million liters	5	0.037	0.001	0.002	0.002
Total energy consumption						
Renewable energy sources	%		0	0	0	0
Non-renewable energy sources	%		100	100	100	100

Aspect: Energy						
EN3 Direct energy consumption (core indicator)	Unit	Comment	2013	2014	2015	2016
Therein FraGround						
Purchased direct non-renewable energy sources	TJ			0.34	0.39	0.35
Diesel	TJ			0.2	0.3	0.3
Diesel	million liters	5		0.005	0.007	0.007
Gasoline	TJ			0.16	0.13	0.08
Gasoline	million liters	5		0.005	0.004	0.003
Total energy consumption						
Renewable energy sources	%			0	0	0
Non-renewable energy sources	%			100	100	100
Therein GCS						
Purchased direct non-renewable energy sources	TJ			1.24	1.21	1.32
Diesel	TJ			1.1	1.1	1.3
Diesel	million liters	5		0.031	0.032	0.036
Gasoline	TJ			0.14	0.09	0.06
Gasoline	million liters	5		0.004	0.003	0.002
Total energy consumption						
Renewable energy sources	%			0	0	0
Non-renewable energy sources	%			100	100	100

¹ All companies on the contiguous property area of Frankfurt Airport (Fraport parent company, subsidiaries of Fraport AG, more than 500 third parties) to the extent data are available.

² All data including technical losses, as far as known.

³ Consumption of natural gas by third parties based on information that cannot be verified.

⁴ TU = A traffic unit is equivalent to one passenger with baggage or 100 kg of airfreight or airmail.

⁵ The fuel consumption for private use of company cars is not taken into account.

⁶ The reduction in consumption during 2014 is mainly due to the very mild winter 2013/14.

⁷ The level of consumption depends on the number of deicing operations (see indicator "Number of deiced aircraft" in the category traffic volume).

⁸ Kerosene consumption of air start units

TJ = Terajoule

Aspect: Energy						
EN3 Indirect energy consumption (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
		1, 2				
Purchased energy	TJ		4,356.23	4,034.40	4,093.8	4,154.26
Purchased energy	TJ per million TU	3	55.2	50.0	50.1	50.8
Electricity	TJ		2,292.48	2,214.62	2,202.10	2,162.37
Electricity	million kWh		636.80	615.17	611.69	600.66
District heating	TJ		1,567.37	1,300.58	1,377.20	1,488.42
District heating	million kWh		435.38	361.27	382.55	413.45
District cooling	TJ		496.38	519.21	514.49	503.48
District cooling	million kWh		137.88	144.22	142.91	139.85
Indirect energy consumption						
Renewable energy sources	%		26.6	32.6	32.9	38.9
Non-renewable energy sources	%		73.4	67.4	67.1	61.1
Therein Fraport parent company						
Purchased energy	TJ		2,528.8	2,269.5	2,240.0	2,279.9
Purchased energy	TJ per million TU	3	32.1	28.1	27.4	27.9
Electricity	TJ		1,293.3	1,223.4	1,181.7	1,171.6
Electricity	million kWh		359.244	339.829	328.236	325.441
District heating	TJ		795.5	618.5	634.4	691.5
District heating	million kWh		220.965	171.818	176.209	192.087
District cooling	TJ		440.0	427.6	424.0	416.8
District cooling	million kWh		122.229	118.768	117.768	115.769
Indirect energy consumption						
Renewable energy sources	%		24.3	29.6	32.5	37.7
Non-renewable energy sources	%		75.7	70.6	67.5	62.3

Aspect: Energy						
EN3 Indirect energy consumption (core indicator)	Unit	Comment	2013	2014	2015	2016
Therein FCS						
Purchased energy	TJ		35.8	28.2	28.8	37.5
Electricity	TJ		14.4	11.7	11.4	16.1
Electricity	million kWh		3.987	3.244	3.178	4.458
District heating	TJ		21.4	16.5	17.3	21.5
District heating	million kWh		5.949	4.594	4.808	5.967
Indirect energy consumption						
Renewable energy sources	%		24.3	29.6	32.5	37.7
Non-renewable energy sources	%		75.7	70.6	67.5	62.3
Therein N*ICE						
Purchased energy	TJ		2.69	2.05	3.56	3.25
Electricity	TJ		2.2	1.9	3.26	2.93
Electricity	million kWh		0.601	0.514	0.905	0.813
District heating	TJ		0.58	0.20	0.30	0.32
District heating	million kWh		0.141	0.055	0.083	0.089
Indirect energy consumption						
Renewable energy sources	%		24.3	29.6	32.5	37.7
Non-renewable energy sources	%		75.7	70.6	67.5	62.3
Therein FraGround						
Purchased energy	TJ			1.80	2.23	2.43
Electricity	TJ			1.05	1.48	1.50
Electricity	million kWh			0.292	0.411	0.416
District heating	TJ			0.75	0.75	0.93
District heating	million kWh			0.207	0.208	0.258
Indirect energy consumption						
Renewable energy sources	%			29.6	32.5	37.7
Non-renewable energy sources	%			70.6	67.5	62.3
Therein GCS						
Purchased energy	TJ			2.07	1.98	1.97
Electricity	TJ			2.07	1.98	1.97
Electricity	million kWh			0.574	0.550	0.546
District heating	TJ			0.004	0.005	0.004
District heating	million kWh			0.001	0.001	0.001
Indirect energy consumption						
Renewable energy sources	%			29.6	32.5	37.7
Non-renewable energy sources	%			70.6	67.5	62.3

¹ All companies on the contiguous property area of Frankfurt Airport: Fraport parent company, subsidiaries of Fraport AG, more than 500 third parties.

² All data including technical losses, as far as known.

³ TU = A traffic unit is equivalent to one passenger with baggage or 100 kg of airfreight or airmail.

TJ = Terajoule

Aspect: Energy						
EN6 Energy saved due to conservation and efficiency improvements (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company	million kWh	1, 2, 3	15.45	24.17	30.07	42.35

¹ Based on the year 2008, accumulated effects from the year 2008, to the extent effective in subsequent years.

² Calculation of energy which could be saved for reasons of improved procedures, replacement and upgrading of systems and equipment, and modified employee behavior.

³ Includes calculated savings from completed projects.

Aspect: Water						
EN8 Total water consumption (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
Total water consumption	million m ³	1	1.837	1.970	1.774	1.782
Total water consumption	Liters per TU	2	23.3	24.4	21.7	21.8
Drinking water	million m ³	4	1.482	1.624	1.431	1.468
Service water	million m ³	3, 5	0.355	0.346	0.343	0.314
Therein Fraport parent company						
Total water consumption	million m ³	7	1.151	1.166	1.088	1.031
Total water consumption	Liters per TU	2	14.6	14.4	13.3	12.6
Drinking water	million m ³	4	0.864	0.891	0.819	0.723
Service water	million m ³	5	0.287	0.275	0.269	0.308
Therein FCS						
Total water consumption	million m ³		0.007	0.009	0.009	0.009
Drinking water	million m ³	4	0.007	0.009	0.009	0.009
Service water	m ³		-	-	-	-
Therein N*ICE						
Total water consumption	million m ³	6	0.016	0.006	0.009	0.009
Drinking water	million m ³	4, 6	0.012	0.005	0.006	0.006
Service water	million m ³	5	0.004	0.001	0.003	0.003
Therein GCS						
Total water consumption	million m ³		-	-	0.002	0.005
Drinking water	million m ³	4, 8	-	-	0.002	0.005
Service water	m ³		-	-	-	-

¹ All companies on the contiguous property area of Frankfurt Airport: Fraport parent company, subsidiaries of Fraport AG, more than 500 third parties.

² TU = A traffic unit is equivalent to one passenger with baggage or 100 kg of airfreight or airmail.

³ Less share of drinking water at service water treatment in Terminal 2.

⁴ From the local authority water supply.

⁵ The service water is treated from surface water, rainwater and ground water. Contains subsets, which are estimated.

⁶ Water is used to dilute the aircraft deicing agents. In cold and snowy winters larger amounts are needed for de-icing. The water consumption therefore rises accordingly. The period from January to March 2013 was snowy, the winter 2013/14 was conversely exceptionally mild.

⁷ Total consumption for the airport minus consumption by third parties at the Frankfurt Airport site.

⁸ Laundry operation of GCS since July 2015.

Aspect: Water						
A04 Quality of precipitation water (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
Hydrocarbons	mg/l	1	0.1	0.1	0.1	0.08
Materials capable of being deposited	ml/l	1, 2	0.4	3.8	0.3	0.28

¹ A 2 h mixed sample is collected each month from the precipitation water channel at a sampling test station located shortly before the discharge point into the River Main. The value for hydrocarbons was calculated from twelve individual samples, the value for "substances capable of being deposited" from eleven individual samples.

² The increase in 2014 compared with previous years is due to a high value in July. This was preceded by days with very high levels of precipitation, which caused deposits in the drains to be washed out.

Aspect: Biodiversity						
Land use	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
Owned land by Fraport AG	ha	1	2,296.88	2,296.47	2,283.54	2,283.54
of which paved area	ha		1,064.88	1,064.88	1,084.61	1,091.00

¹ Continuous owned land.

Aspect: Emissions, wastewater and waste						
EN15 Greenhouse gas emissions (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company (Scope 1 and 2 GHG)						
CO ₂ emissions	1000 t CO ₂	1, 2	243.1	238.2	218.3	209.3
Direct CO ₂ emissions	1000 t CO ₂	1	37.0	34.5	35.5	36.5
Indirect CO ₂ emissions	1000 t CO ₂	2	206.0	203.7	182.8	172.8
Climate intensity of traffic performance	kg CO ₂ per TU	1, 2, 3	3.08	2.95	2.68	2.56
Direct CO ₂ emissions	kg CO ₂ per TU	1, 3	0.47	0.43	0.44	0.45
Indirect CO ₂ emissions	kg CO ₂ per TU	2, 3	2.61	2.52	2.24	2.11
Compensated CO ₂ emissions (certificates)	1000 t CO ₂		0	0	0	0
Other relevant greenhouse gas emissions	t CO ₂ equivalent	4	<2	<2	<2	<2
FCS (Scope 1 and 2 GHG)						
CO ₂ emissions	1000 t CO ₂		3.2	2.7	2.6	3.3
Direct CO ₂ emissions	1000 t CO ₂	1	0.4	0.4	0.4	0.5
Indirect CO ₂ emissions	1000 t CO ₂	2	2.8	2.3	2.2	2.8
N*ICE (Scope 1 and 2 GHG)						
CO ₂ emissions	1000 t CO ₂		1.8	0.8	1.5	1.4
Direct CO ₂ emissions	1000 t CO ₂	1	1.5	0.6	1.1	1.0
Indirect CO ₂ emissions	1000 t CO ₂	2	0.3	0.3	0.4	0.3
FraGround (Scope 1 and 2 GHG)						
CO ₂ emissions	1000 t CO ₂			0.29	0.21	0.23
Direct CO ₂ emissions	1000 t CO ₂	1		0.02	0.03	0.02
Indirect CO ₂ emissions	1000 t CO ₂	2		0.27	0.19	0.21
GCS (Scope 1 and 2 GHG)						
CO ₂ emissions	1000 t CO ₂			0.37	0.33	0.32
Direct CO ₂ emissions	1000 t CO ₂	1		0.09	0.09	0.10
Indirect CO ₂ emissions	1000 t CO ₂	2		0.27	0.24	0.22

¹ Direct emission in conformity with Scope 1 GHG Protocol Standard: fuels, fuels for combustion plants, here heating oil, natural gas, propane gas.

² Indirect emissions in conformity with Scope 2 GHG Protocol Standard: purchasing of electricity (Fraport Group), district heating, district cooling (Fraport at the Frankfurt site).

³ TU = A traffic unit is equivalent to one passenger with baggage or 100 kg of airfreight or airmail.

⁴ Only negligible amounts of additional greenhouse gases (such as CH₄, N₂O) are under the influence of Fraport parent company.

Aspect: Emissions, wastewater and waste						
EN17 Other greenhouse gas emissions (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company (Scope 3 in conformity with GHG)						
Air traffic	1000 t CO ₂	1, 7	919.4	936.5	952.2	936.2
Employee traffic at Fraport parent company and third parties at Frankfurt Airport	1000 t CO ₂	2	118.9	113.7	112.8	115.0
Passenger traffic (passengers originated here)	1000 t CO ₂	3	259.0	231.3	201.3	173.2
Business trips of employees at Fraport parent company	1000 t CO ₂	4	0.86	0.75	0.70	0.81
Energy consumption of third parties (infrastructure and vehicles)	1000 t CO ₂	5	187.2	186.5	179.5	173.2
Other relevant greenhouse gas emissions	t CO ₂ equivalent	6	<2	<2	<2	<2

¹ Air traffic up to 914 m (LTO cycle) of all aircraft landing and taking off at Frankfurt Airport, use of APU.

² Travel by employees to and from the workplace.

³ Travel to and from the airport by passengers, travel in private vehicles and public transport.

⁴ Includes car, rail, and air travel.

⁵ Electricity, heat, cooling, fuels.

⁶ According to investigations carried out in 2005, the emissions of other greenhouse gases at the airport were negligible.

⁷ From 2013 calculation without increased reverse thrust (compared with idle) with APU according to ICAO Doc. 9889.

Aspect: Emissions, wastewater and waste						
EN21 NO _x , SO ₂ and other air pollutants (core indicator)	Unit	Comment	2013	2014	2015	2016
Air traffic at Frankfurt Airport		1				
NO _x	t	2, 3	2,438	2,443	2,513	2,510
HC	t	2, 3	423	414	410	387
PM10	t	2, 3	23	23	23	23
SO ₂	t	2, 3	166	165	168	165
NO _x	g per TU	2, 4	30.92	30.25	30.76	30.67
HC	g per TU	2, 4	5.36	5.13	5.02	4.73
PM10	g per TU	2, 4	0.29	0.28	0.28	0.28
SO ₂	g per TU	2, 4	2.11	2.04	2.06	2.02

¹ Caused by 110 to 114 different airlines depending on timetable (summer, winter), only indirectly influenced by Fraport.

² Air traffic: emissions in tons per calendar year up to an altitude of 300 meter (taxiing, starting, climb, descent incl. rollout, engine ignition, APU). Up to an altitude of 300 meters the emissions have a regional effect.

³ From 2013, calculation without including increased reverse thrust (as compared to 'idle') and adjustments to ICAO Doc. 9889 for APU, engine ignition (HC) and particulate emissions. Under the old method (until 2012), the emissions of NO_x = 2462 t, HC = 597 t, PM10 = 12.1 t, SO₂ = 270 t.

⁴ TU = A traffic unit is equivalent to a passenger with baggage or 100 kg of airfreight or airmail.

Aspect: Emissions, wastewater and waste						
EN21 NO ₂ , SO ₂ and other air pollutants (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company						
NO _x	t	1	–	–	–	–
Benzol	t	1	–	–	–	–
PM10 (Fine dust < 10 µm)	t	1	–	–	–	–

¹ Fraport parent company emits per year approximately 264 t NO_x, 0.4 t benzene and 9.3 t PM10. These data are derived from the zoning plan documents. An annual update is not yet possible because determining the data is very complex. In future, the data are to be calculated on a continuous basis, the necessary processes are currently being prepared.

Aspect: Emissions, wastewater and waste						
EN22 Total wastewater discharge (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
Sewage water	million m ³	1,2	2.253	1.535	1.986	1.820
Sewage water	Liters per TU	3	28.6	19.0	24.3	22.2

¹ Wastewater from Fraport parent company and more than 500 other companies at Frankfurt Airport. The disposal of sewage water from Frankfurt Airport is carried out by Fraport AG, allocation to individual companies is not possible.

² Wastewater is treated in the fully biological water-treatment plant at the Fraport parent company, as well as at fully biological water-treatment plants in Frankfurt Niederrad and Frankfurt Sindlingen. Since 2013, the separation of the precipitation water contaminated with deicing agents has brought about an increased dependence of the amount of sewage water on the nature of the weather conditions in the relevant winter. The mild winter 2013/14 led to a significant decline in the volume of sewage water.

³ TU = A traffic unit is equivalent to one passenger with baggage or 100 kg of airfreight or airmail.

Aspect: Emissions, wastewater and waste						
EN23 Waste by type and disposal method (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company						
Amount of waste	1000 t	1, 2	26.54	23.41	21.49	19.52
kg per TU	kg per TU	3	0.34	0.29	0.26	0.24
Hazardous waste	1000 t	1, 2	2.73	1.59	1.60	1.51
Non-hazardous waste	1000 t	1, 2	23.81	21.82	19.88	18.00
Total recoverability	1000 t	1, 2	22.19	20.30	19.15	17.65
Total disposal	1000 t	1, 2	4.35	2.17	2.34	1.87
Total recoverability rate	%	1, 2, 4	83.6	90.3	89.1	90.4
Waste from international flights	1000 t		5.93	5.77	5.00	4.51
FCS						
Amount of waste	1000 t	1	0.900	0.945	0.946	1.303
Hazardous waste	t	1	0.240	0	0	0
Non-hazardous waste	1000 t	1	0.900	0.945	0.946	1.303
Total recoverability	1000 t	1	0.862	0.907	0.906	1.255
Total disposal	t	1	38.5	37.8	39.9	47.6
Total recoverability rate	%	1, 4	95.7	96.0	95.8	96.3
N*ICE						
Amount of waste	1000 t	1, 6	0.16	0.09	0.13	0.10
Hazardous waste	1000 t	1	0	0	0	0
Non-hazardous waste	1000 t	1, 6	0.16	0.09	0.13	0.10
Total recoverability	1000 t	1, 5	0.16	0.09	0.13	0.10
Total disposal	1000 t	1	0	0	0	0
Total recoverability rate	%	1, 4	100	100	100	100.0
FraGround						
Amount of waste	1000 t	1			15.31	5.60
Hazardous waste	1000 t	1			0	0
Non-hazardous waste	1000 t	1			15.31	5.60
Total recoverability	1000 t	1			15.31	5.60
Total disposal	1000 t	1			0	0
Total recoverability rate	%	1, 4			100	100
GCS						
Amount of waste	1000 t	7				
Hazardous waste	1000 t	7				
Non-hazardous waste	1000 t	7				
Total recoverability	1000 t	7				
Total disposal	1000 t	7				
Total recoverability rate	%	7				

¹ Without soil and building rubble.

² Including waste from third parties, primarily residual waste out of aircraft (no catering waste) and without soil and building rubble.

³ TU = A traffic unit is equivalent to a passenger with baggage or 100 kg of airfreight or airmail.

⁴ Change in definition on account of the new German Product Recycling Act (KrWG) coming into force in June 2012.

⁵ Aircraft de-icing agents.

⁶ The total amount is a mixture of water and Type I/Type IV fluids. The value for 2013 is increased due to heavy snowfall and cold weather conditions in that year (hence, significantly increased samplings, liquids exchange and workshop tests). The value for 2014 declined again due to the milder weather conditions prevailing in that winter.

⁷ Waste is disposed of through Fraport and forms part of the footprint balance sheet there.

Aspect: Emissions, wastewater and waste						
EN24 Significant spills (core indicator)	Einheit	Anmerkung	2013	2014	2015	2016
Fraport parent company						
Total number and volume of significant spills						
Number of spills	Number		637	649	735	779
Volume of spills	m ³		12.37	8.52	8.00	8.22
Frequency of spills	Number per 1,000 aircraft movements		1.35	1.38	1.57	1.68
Effects		2	none	none	none	none

¹ Spills primarily by third parties.

² No environmental hazard because releases are generally on surfaced areas with comprehensive safety installations implemented downstream. Spills on not surfaced areas are very rare exceptions, and are cleared up immediately.

Aspect: Emissions, wastewater and waste						
Groundwater improvement	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
Nitrate content at reference measuring station well FBS	mg/l	1	37	31	29	29

¹ Yearly average value.

Aspect: Emissions, wastewater and waste						
AOS Air quality (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
		1, 2				
NO ₂	µg/m ³	3	47	46	46	45
SO ₂	µg/m ³	4	2	2	2	2
PM10 (fine dust < 10 µm)	µg/m ³	5	20	19	18	17
Benzol	µg/m ³	6	0.8	0.7	0.7	0.7

¹ Annual average of the measured values at the SOMMI1 Station. These values presented the aggregated result of all emissions from different source groups, i.e. apart from pollutants contributed by the airport they also include emissions from third parties (road traffic, trade and industry, house fires, large-scale background pollution). The proportion of the airport depends on the location, and model calculations indicate that the proportion here is between approx. 10 % and 30 %.

² Limit values/annual average (not applicable at the airport, since no year-round exposure for humans).

³ NO₂ assessment value according to EU Directive 2008/50/EC, 39. Federal Emission Control Act (BlmSchV): 40 µg/m³.

⁴ SO₂ assessment according to Technical Instructions on Air Quality Control (TA Luft) 2002 (otherwise no annual average defined): 50 µg/m³.

⁵ Fine dust, PM10 in accordance with EU Directive 2008/50/EC, 39. Federal Emission Control Act (BlmSchV): 40 µg/m³.

⁶ Benzene assessment value in accordance with EU Directive 2008/50/EC, 39. Federal Emission Control Act (BlmSchV): 5 mg/m³.

Aspect: Emissions, wastewater and waste						
AO6 Airfield surfaces and aircraft de-icing agents (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company						
Operating materials and supplies		1				
Airfield surfaces deicing agent: potassium format (fluid – approx. 50% agent), applied on the aircraft movement areas	m ³		2,452	1,064	924	756
Airfield surfaces deicing agent: sodium formate (granulate – approx. 100 % agent)	m ³		241	88	246	121
Road salt (NaCl)	m ³			294	636	286
N*ICE						
Aircraft deicing agent: propylene glycol (N*ICE)	m ³ active ingredient		2,901	712	1,082	1,108
Aircraft deicing agents: propylene glycol; per de-iced aircraft (N*ICE)	m ³ substance per aircraft		0.313	0.280	0.267	0.222

¹ Fraport as an airport operator is a service provider, the product is the “traffic unit”, defined as one passenger with baggage or 100 kg of airfreight or air mail. Other materials used are found under “Direct energy consumption” and “Water”.

Aspect: Transport

EN30 Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce (core indicator)	Unit	Comment	2013	2014	2015	2016
Fraport parent company						
Employee traffic						
Travel to and from work by public transport	Share of employees in %	1	34.2	33.4	32.1	30.2
Travel to and from work by carpooling	Share of employees in %	1	15.0	15.2	14.5	14.8
Passenger traffic at Frankfurt Airport (FRA)						
Travel of originating passengers to and from the airport by public transport	Share of passengers in %	1	40.8	36.9	35.4	33.8
therein arrival/departure by ICE (Intercity Express)	Share of passengers in %	1	19.3	16.1	14.5	11.3

¹ The values are based on a survey.

Aspect: Aircraft noise

A07 Number and percentage of people* residing in areas affected by noise (core indicator)	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport						
Number of people residing in the contour Ldn = 60 dB(A)	Number	1, 2	9,374	11,216	10,285	9,560
Relative change compared with the previous year	Percent		-22	20	-8	-7
Number of people residing in the contour Leq, day = 60 dB(A) (analogous criterion as in Act for Protection against Aircraft Noise)	Number	1, 3	2,710	3,297	3,000	2,781
Relative change compared with the previous year	Percent		-32	22	-9	-7
ANumber of people residing in the contour Leq, day = 55 dB(A) (analogous criterion as in Act for Protection against Aircraft Noise)	Number	1, 4, 5	95,462	101,386	102,958	99,117
Relative change compared with the previous year	Percent		-3	6	2	-4
Number of people residing in the contour of the envelope from NAT, night = 6 x 68 dB(A) and Leq, night = 50 dB(A) (analogous criterion as in Act for Protection against Aircraft Noise)	Number	1, 6	72,764	75,371	72,462	68,571
Relative change compared with the previous year	Prozent		-16	4	-4	-5

* Population database DDS. Survey status of these data for all evaluations: 2010.

¹ The aircraft noise contours were calculated on the basis of two national regulations: "Introduction to Calculation of Noise Abatement Areas (AzB)" and "Introduction to data collection on Flight Operations (AzD, 2008)". All scenarios were standardized on the basis of the long-term average operating direction distribution for the ten years 2000 to 2009. The Sigma supplement developed for the projected protection zone calculation in accordance with the Noise Abatement Act and described in AzB and AzD was not applied.

² The evaluation quantity Ldn (Level day/night) is a 24h-equivalent continuous sound level in dB(A), where a supplement of 10 dB is applied for sound events occurring during night time. The Ldn permits impact changes from year to year to be documented on the basis of a single criterion.

³ The criterion Leq, day = 60 dB(A) is based on the definition of day protection zone 1 in accordance with the Aircraft Noise Abatement Act.

⁴ The criterion Leq, day = 55 dB(A) is based on the definition of day protection zone 2 in accordance with the Aircraft Noise Abatement Act.

⁵ The data on Leq, day = 55 dB(A) is the total number within this contour, the number specified under Leq, day = 60 dB(A) is therefore a sub-quantity.

⁶ The criterion envelope from NAT, night = 6 x 68 dB(A) and Leq, night = 50 dB(A) is based on the definition of night protection zone according to the Aircraft Noise Abatement Act.

Aspect: Aircraft noise						
EN30 Significant environmental impacts of transporting products and other goods and materials used for the organization's operations, and transporting members of the workforce (core indicator)	Unit	Comment	2013	2014	2015	2016
Surrounding area of Frankfurt Airport						
Approach		1				
Monitoring station 01 Offenbach Lauterborn, day	Leq(3) in dB(A)	2, 3	58	58	57	57
Monitoring station 01 Offenbach Lauterborn, night	Leq(3) in dB(A)	2, 4	51	51	51	52
Monitoring station 06 Raunheim, day	Leq(3) in dB(A)	2, 3	61	61	61	61
Monitoring station 06 Raunheim, night	Leq(3) in dB(A)	2, 4	54	54	54	54
Take off						
Monitoring station 12 Bad Weilbach, day	Leq(3) in dB(A)	2, 3	55	55	55	55
Monitoring station 12 Bad Weilbach, night	Leq(3) in dB(A)	2, 4, 8	45	49	47	48
Monitoring station 51 Worfelden, day	Leq(3) in dB(A)	2, 3	58	58	57	57
Monitoring station 51 Worfelden, night	Leq(3) in dB(A)	2, 4	54	54	52	53
Frequency of the exceedance of the maximum level of 68 dB(A) per night		1, 4				
Monitoring station 01 Offenbach-Lauterborn	Number of exceedance cases	5	14.7	15.1	14.1	16.3
Monitoring station 06 Raunheim	Number of exceedance cases	5, 8	8.8	10.0	9.6	8.5
Monitoring station 12 Bad Weilbach	Number of exceedance cases	5, 8	2.8	6.4	4.7	5.3
Monitoring station 51 Worfelden	Number of exceedance cases	5, 8	16.4	18.4	14.8	15.6
Share of western operations day	Share in %	3, 6, 7	68.3	65.9	67.3	66.9
Share of western operations night	Share in %	4, 6, 7	68.5	69.6	69.6	68.4
1 Selected representative noise-monitoring station from a monitoring network with 28 static stations.						
2 Energy equivalent continuous sound level [Leq(3) in dB(A)] based on the German Aircraft Noise Act 2007 in conformity with DIN 45643. Leq(3) is calculated during the six busiest months from May until October based on the German Aircraft Noise Act, segmented in day and night. Changes to the monitoring stations on the approach and takeoff routes of the parallel runway system are mainly based on the fluctuations in the distribution of operations (easterly/westerly) from year to year caused by different weather conditions or wind directions. The website www.fraport.de provides detailed information.						
3 Daytime: 06:00 to 22:00						
4 Nighttime: 22:00 to 06:00						
5 During the six busiest months (2013, 2014, 2015, 2016: May until October).						
6 From the parallel runway system with takeoff toward the west, approach from the east.						
7 Share of easterly operations: difference from share of westerly operations in % to 100%.						
8 Increase in the level and the number of exceedances compared with the previous year on account of modified takeoff procedures during the nighttime hours (see Noise Abatement Report summer schedule 2014; page 8).						

Aspect: Health and safety of the customers						
AO9 Total number of wildlife strikes per 10,000 movements	Unit	Comment	2013	2014	2015	2016
Frankfurt Airport	Number per 10,000 aircraft movements	1,2	2.48	2.96	2.61	4.86
1 Bird strike rate (number of bird strikes per 10,000 aircraft movements): All incidents with birds at Frankfurt Airport and in the adjacent surrounding environment for aircraft with German registrations. The bird strike rate is calculated in relation to total aircraft movements at Frankfurt Airport. The registration of a relevant bird strike is made by the pilot to the German Committee for Prevention of Bird Strikes in Air Traffic (DAVVL). The DAVVL forwards an annual list of all bird strikes to the relevant airport operator. On the basis of this list, the airport operator (in this case Fraport AG) calculates the bird strike rate.						
2 According to EU Directive 376 there have been significant deviations in rates since 2016. This is mainly due to a change in the reporting system. They are no longer comparable with previous years.						

Compliance with statutory regulations

There are no breaches of statutory regulations which have been subject to fines or non-monetary sanctions imposed by the authorities, and no proceedings in relation to such breaches are pending.

Glossary

ACI Airports Council International – International association of airports based in Geneva, Switzerland. The organization attempts to boost cooperation between airports, and represents their interests in international forums or in negotiations with governments. It has more than 1,530 member airports located in almost all countries worldwide, 400 airports are within ACI Europe.
www.aci-europe.org

ADV Arbeitsgemeinschaft Deutscher Verkehrsflughäfen – German Airports Association. An association for civil aviation in Germany, founded in Stuttgart in 1947. This association today represents airports in Germany, Austria, and Switzerland. www.adv.aero

Airport charges – Regulate the airport, infrastructure and ground-service charges that the airlines pay to the airport. Fraport airport charges have a component dependent on noise and emissions.

Aircraft movement – A takeoff or a landing operation.

Aircraft noise monitoring system/Aircraft noise measurement system of Fraport AG at Frankfurt Airport – The measuring and monitoring system was launched in 1964 and has been continuously improved since then. Apart from recording the aircraft noise situation at each monitoring station, the system is also used for acoustic monitoring of specified flight routes and flight procedures.

APU Auxiliary Power Unit – The power supply unit on board an aircraft that is used to provide electricity for the power supply and air-conditioning on the ground.

Biodiversity – The variety of all life on earth. Science distinguishes four aspects of diversity: genetic diversity, species diversity, diversity of ecosystems (e.g. the variation in habitats), and functional biodiversity (i.e. the variation in biological interactions).

CDP Carbon Disclosure Project – Initiative that wants to introduce more transparency for the CO₂ emissions generated by major companies. This is the world's biggest initiative ever undertaken by the finance industry. It assesses the effects of global climate change on companies and analyzes their strategies. Fraport has been participating since 2006.

Dangerous goods – Materials, compounds and objects which contain substances that present specific hazards during transportation for safety or order of the community, in particular for the general public, important common assets, life and

health of humans and animals, and other items on account of their characteristics, their physical or chemical properties, or their status, and which should be classified as dangerous goods on the basis of legal regulations.

Decibel (A); dB(A) – Named after Alexander Graham Bell, the inventor of the telephone, the decibel defines sound pressure levels logarithmically. The sound pressure level characterizes the pressure ratio of a sound event to the human auditory threshold. dB(A) means that the frequency dependence of the human sense of hearing is taken account of during measurement by applying a filter. The sound pressure level defined as A has proved effective and has now been standardized internationally. An increase of ten dB corresponds to a tenfold increase in sound intensity. A difference of 10 dB is equivalent to halving or doubling the perceived volume.

DFS Deutsche Flugsicherung GmbH – German Air Navigation Services (DFS). Its functions are regulated in accordance with the German Air Traffic Control Act (Luftverkehrsgesetz). They mainly comprise air-traffic control and acceptance, processing, and forwarding of flight plans. The DFS is also responsible for the technical facilities and radio navigation systems for aircraft. The DFS has joined forces with airports, airline companies and the aircraft noise commission to establish airspace procedures and measures to reduce aircraft noise.
www.dfs.de

DGNB – See German Sustainable Building Council.

EMAS: European Eco-Management and Audit Scheme – A voluntary environmental instrument for companies and organizations with the goal of continuously reducing environmental impacts. EMAS organizations verifiably comply with the legal regulations relevant to the environment, maintain a management and auditing system which allows them to continuously reduce environmental impacts, and periodically draw up an Environmental Statement which places achievements in environmental protection in the public domain. The Environmental Statement presents the environmental footprint for the organization. It is therefore audited by an environmental auditor and confirmed if it fulfills EMAS requirements. EMAS, therefore, represents performance, credibility and transparency.

Emissions – All (solid, gaseous, or odorous) substances, wave radiation or particle radiation emitted from systems and plants, vehicles, products, materials, or other sources (for example aircraft) which exert an impact on the surrounding environment.

Energy Air – The company Energy Air GmbH supplies Fraport AG and the majority of the companies based at Frankfurt Airport with energy.

Energy equivalent continuous sound level $Leq(3)$ – The sound level which a steady continuous noise would need to have in order to supply the same sound energy as the different individual noises actually occurring during a defined time period. The $Leq(3)$ is a standard international noise measurement with the halving parameter $q = 3$. The halving parameter $q = 3$ effectively means that if the aircraft mix remains identical and the number of planes flying past a monitoring station doubles, the continuous sound level increases by 3 dB. If the number of aircraft movements halves, the continuous sound level comes down by 3 dB. Pursuant to the German Aircraft Noise Act (Fluglärmsgesetz) ratified in 2007, the continuous sound levels $Leq(3)$ should be calculated separately for day and night in the six months of a year with the highest traffic volumes.

EnEV Energie-Einspar-Verordnung – The German Energy Saving Directive is part of German building legislation and defines standards for property developers relating to energy-saving heat insulation and energy-saving system technology in buildings.

Environment & Community Center – Institution of the “Airport and Region Forum” dedicated to providing transparent and neutral information. The institution’s key aim is to continuously improve cooperation between the airport, its users and its neighbors. It also has the functions of bringing together the results derived from monitoring different aspects of environmental protection and providing neutral expert advice.

Environmental auditor – natural or legal person who is granted the right under the German Environmental Audit Law (Umweltauditgesetz) to confirm that organizations (industrial companies, service companies, or other institutions) are in conformity with the requirements of the European Eco-Management and Audit Scheme (EMAS). Environmental auditors/organizations are subject to a special authorization procedure.

Environmental performance – the quantifiable results derived from the management of the environmental aspects of an organization by this organization.

Environmental Statement – According to EMAS, an Environmental Statement must be drawn up regularly and placed in the public domain. This statement describes the organization together with its activities, products and services. The in-house Environmental Policy, the key environmental effects, and the Environmental Program are presented together with the concrete goals for improving operational environmental protection.

Data on environmental performance is also provided with an assessment. Each Environmental Statement must be verified by an independent, nationally accredited environmental auditor. If it meets the requirements of the EMAS Directive, the environmental auditor declares that the Environmental Statement is valid (validation). The Environmental Statement is made available to the public as a printed document or in electronic form.

ETS Emission Trading Scheme – An instrument of the European Union (EU) that is intended to contribute to reducing the emission of greenhouse gases in the EU efficiently, cost-effectively and economically.

EUROCONTROL – Established in 1960 with the goal of providing air traffic control for all international flights in the airspace of the member states. The organization also levies the charges for air traffic control and makes an important contribution to training and research into air traffic control. Eurocontrol currently has 39 member states and the European Union.

FCS Fraport Cargo Services GmbH – The company is the biggest neutral cargo handler at Frankfurt Airport and offers comprehensive full-service packages for cargo handling and complete handling of special freight: dangerous goods, express freight, perishables, animals, valuable freight, etc.

FRA – International three-letter code for Frankfurt Airport.

FraGround – The company FraGround Fraport Ground Services GmbH provides services at Frankfurt Airport particularly in the area of ground handling.

GCS – The company GCS Gesellschaft für Cleaning Service mbH & Co. Airport Frankfurt/Main KG provides services for cleaning, logistics, and engineering at Frankfurt Airport.

Geothermy – Use of geothermal power (natural heat of the earth) to generate energy

German Sustainable Building Council – Deutsche Gesellschaft für Nachhaltiges Bauen (DGNB). The mission of this council is to develop and promote initiatives and solutions for sustainable construction, use and planning of buildings.

GHG - Greenhouse Gas Protocol Initiative (GHG Protocol) develops internationally recognized reporting standards for greenhouse gas emissions generated by companies. The emissions are classified into three so-called “Scopes” on the basis of their origin. Scope 1: Emissions that are generated and controlled directly as part of the business activity of the company (e.g. by the combustion of fuel in company vehicles). Scope 2: Emissions that are generated indirectly by third parties for the

company (e.g. electricity generated by utility companies). Scope 3: Indirect emissions that are outside the direct control of the company but are generated because they play an important role in the business activities of the company (e.g. travel by passengers to and from the airport).

GRI – Global Reporting Initiative, engages in a participative procedure to develop guidelines for drawing up sustainability reports by major companies, small and mid-sized companies, governments and non-government organizations.

Hazardous materials – Operating materials that possess hazardous characteristics or may release hazardous substances, for example at the workplace.

HLNUG – Hessisches Landesamt für Naturschutz, Umwelt und Geologie – Hessian State Agency for Nature Conservation, Environment and Geology.

IATA – International Air Transport Association. www.iataonline.com

ICAO International Civil Aviation Organization – A special body of the United Nations. It is charged with establishing uniform standards for international aviation safety, security, continuity and efficiency, and developing them on an ongoing basis. www.icao.int

ICAO International Civil Aviation Organization, Annex 16 – The ICAO has been issuing a standard for limiting the sound emitted by civil aircraft since 1971: Annex 16 to the Agreement on International Civil Aviation. When aircraft are newly licensed, proof must be provided that they are in conformity with the latest requirements defined in the Annex.

Impacts – Effects of noises (sound or noise emissions), airborne pollutants (air emissions), vibrations (vibration emissions) and heat (heat emissions) on the environment.

Indirect dischargers – Wastewater dischargers who do not discharge their wastewater directly into the waterways, but through public drains and sewage plants.

Intermodality – Combined goods transportation, combination of individual and public passenger carriers (park-and-ride, park-and-rail, bike-and-ride) or the use of public transportation, particularly high-speed rail transport as a feeder shuttle for air transport.

IPCC Intergovernmental Panel on Climate Change – The intergovernmental UN panel of experts was set up to conduct research for climate change in 1988 by the World Meteorological Organization (WMO) and the environment program of the United Nations. www.ipcc.ch

ISO – International Organization for Standardization.

ISO 14001 – This international environmental management standard defines globally recognized standards for environmental management. It allows companies to establish environmental protection systematically within their internal structures. www.iso.org

Kyoto Protocol – The agreement defines binding targets for reducing the emission of greenhouse gases. It was adopted in 1997 as an additional agreement linked to the United Nations Framework Convention on Climate Change (UNFCCC) and came into force in February 2005. The agreement expired in 2012.

Long-distance train station – opened in 1999. This provides the direct link between Frankfurt Airport and the high-speed European rail network. It represents a key factor for the ongoing development of the airport's intermodality, i.e. networking different transportation systems. Frankfurt Airport has a second station under Terminal 1 – the regional station – for the rapid-transit railway (S-Bahn) and regional trains.

N*ICE Aircraft Services & Support GmbH – The subsidiary company of Fraport AG and Serviceair SAS is a specialist in deicing aircraft. The company has developed innovative procedures exerting minimum impact on the environment. It also provides training for technical personnel at other airports.

Operational direction – The operational direction of an airport depends on the prevailing direction of the wind: aircraft only take off and land against the wind. Frankfurt Airport has the operational directions 25 (this corresponds to 250 degrees on the compass card, i.e. west wind) and 07 (east wind). Because winds in a westerly direction occur 75 percent of the time, the operational direction 25 is flown correspondingly more frequently.

PCA – Pre-Conditioned Air System is an air-conditioning system for aircraft in the parked position achieved by supply of air-conditioning air.

Population equivalent – Unit for comparing trade or industrial sewage water with household sewage water. A population equivalent represents the biochemical oxygen consumption (measured as the BOD or Biochemical Oxygen Demand, 60 g BSB5/Ed) or water consumption (200 l/Ed) that an inhabitant requires each day.

RECS – Renewable Energy Certificate System introduced in 2002 with the objective of facilitating trade in green electricity throughout Europe and promoting regenerative energies. The certificate issued by RECS guarantees that identifiable amounts of electrical energy are supplied from specific regenerative sources.

Site – According to EMAS “a specific geographical location which is under the control of an organization and where activities are conducted, products manufactured and services are provided, including the entire infrastructure, all equipment and all materials. A site is the smallest unit that can be considered for registration.”

Stakeholder – Groups or individuals who are affected by the activities of a company and can

exert influence on attainment of their aims.

Accordingly, the stakeholders of a company are the employees, shareholders and lenders, customers, suppliers, neighbors, non-government organizations, government agencies, and politicians.

Sustainability – The concept of sustainability has been applied as a model for the sustainable development of humanity. Sustainable development meets the needs of the people living on the planet at the moment without endangering the opportunities of future generations in turn to satisfy their needs.

TU Traffic Unit – Equivalent to a passenger with baggage (excluding transit passengers, according to ADV and ACI) or 100 kg cargo or mail. Transit passengers are people who do not leave the aircraft (< one percent of all passengers). ADV = German Airports Association, ACI = Airports Council International.



Environmental Auditor's Declaration on Verification and Validation Activities

with registration number DE-V-0133,
 represented by Dr. Burckhard Kühnemann with registration number DE-V-0103
 and Ulrich Schmidt with registration number DE-V-0336,
 accredited or licensed for the scope NACE 52.23,
 declares to have verified whether the site or the whole organization as indicated
 in the updated environmental statement of the
 organization Fraport AG
 with registration number DE-125-00032

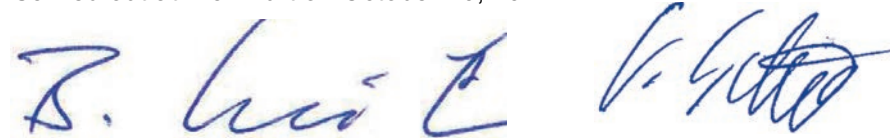
meets all requirements of Regulation (EC) No 1221/2009 of the European Parliament and of the Council
 of 25 November 2009 on the voluntary participation by organizations in a Community eco-management
 and audit scheme (EMAS).

By signing this declaration, I declare that:

- the verification and validation has been carried out in full compliance with the requirements of
 Regulation (EC) No 1221/2009,
- the outcome of the verification and validation confirms that there is no evidence of non-compliance
 with applicable legal requirements relating to the environment,
- the data and information of the updated environmental statement of the organization reflect a
 reliable, credible and correct image of all the site's activities, within the scope mentioned in the
 environmental statement.

This document is not equivalent to EMAS registration. EMAS registration can only be granted by a
 Competent Body under Regulation (EC) No 1221/2009. This document shall not be used as a stand-
 alone piece of public communication.

Carried out at Frankfurt on October 10, 2017



Dr. Kühnemann Institut
und Partner für
Umwelt

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 Registration number: DE-V-0133

Schedule

The next Environmental Statement, scheduled for July 2018, will be subject to validation by an
 environmental auditor before being released for publication.

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** to the issues of aircraft noise and airport expansion, in Germany exempt from charges

As of October 10, 2017

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