

SUSTAINABILITY INDICATORS

Thinking for the long term, acting with responsibility, creating transparency in communications: Munich Airport prepares a report on its efforts in the field of sustainability in accordance with the highest standards.

Value generated / GRI standard 201-1

Group in € million	2017	2016	2015 ¹⁾
Revenue	1,468.7	1,364.1	1,249.3
+ Other income	44.1	66.6	60.3
Total revenue	1,512.8	1,430.7	1,309.6
+ Income from investments	2.1	1.5	1.6
Minus Non-personnel expenses	-510.7	-449.2	-415.0
Minus Depreciation and amortization	-217.6	-239.1	-214.3
= Value generated	786.6	743.9	681.9

¹⁾ 2015 values adjusted in accordance with IAS 8

Value distributed / GRI standard 201-1

Group in € million	2017	2016	2015 ¹⁾
Employees	482.1	452.5	400.3
Lenders (netted)	75.3	81.6	83.2
Public sector	70.4	58.2	55.1
Munich Airport Group	158.8	151.6	143.3
= Value generated	786.6	743.9	681.9

¹⁾ 2015 values adjusted in accordance with IAS 8

The value generated calculation represents the difference between the service provided by the company and the value of the advance services required.

✓ - External Audit

The distribution statement shows the proportions distributed to those involved in the value creation process – employees, the public sector, and lenders. Payments provided by FMG to the public sector include taxes. The interest on the loans to shareholders is included under the «Lenders» recipient group. The income from investments includes the income from companies valued using the equity method and income from the transfer of profit from non-consolidated entities. The non-personnel expenses include the cost of materials and other expenses.

Air traffic indicators / GRI A01, A02, A03 ✓

	2017	2016	2015
Total passenger volume	44,594,516	42,277,692	40,998,553
Total commercial traffic ¹⁾	44,577,241	42,261,309	40,981,522
Scheduled and charter traffic	44,556,053	42,241,902	40,961,424
Other commercial traffic ¹⁾	21,188	19,407	20,098
Non-commercial traffic ¹⁾	17,275	16,383	17,031
Total aircraft movements	404,505	394,430	379,911
Total commercial traffic ¹⁾	395,047	385,081	370,348
Scheduled and charter traffic	383,934	374,057	360,009
Other commercial traffic ¹⁾	11,113	11,024	10,339
General air traffic (non-commercial traffic) ¹⁾	9,458	9,349	9,563
Seating capacity utilization in %	76.5	75.1	76.6
Cargo throughput			
Cargo and airmail carried in t	378,803	353,650	336,162
Traffic units [TU] of commercial traffic	48,334,296	45,709,334	44,234,684

¹⁾ For term definitions see the Annual Statistics Report 2017, p. 28/29

➔ munich-airport.com/statistics

➔ Glossary

Passenger indicators (commercial traffic only) / GRI A01 ✓

	2017			2016			2015		
	Total	Domestic	International	Total	Domestic	International	Total	Domestic	International
Total commercial traffic	44,577,241	9,841,103	34,736,138	42,261,309	9,632,163	32,629,146	40,981,522	9,585,642	31,395,880
Arrivals	22,340,548	4,917,320	17,423,228	21,142,346	4,816,340	16,326,006	20,474,755	4,771,295	15,703,460
Departures	22,205,715	4,916,814	17,288,901	21,030,482	4,803,413	16,227,069	20,398,313	4,805,150	15,593,163
Transit passengers ¹⁾	30,978	6,969	24,009	88,481	12,410	76,071	108,454	9,197	99,257
Number of O&D passengers ²⁾ in millions	28.3	-	-	27.0	-	-	26.2	-	-
Number of transfer passengers in millions	16.2	-	-	15.2	-	-	14.8	-	-
Transfer passengers in % ³⁾	36	-	-	36	-	-	36	-	-

¹⁾ Transit passengers are passengers who fly into the airport and continue their trip on the same aircraft. Transit passengers are only counted when landing.

²⁾ Origin & Destination passengers are passengers who start or end their trip at the airport.

³⁾ The proportion of transfer passengers is based on departure passenger surveys.

Detailed information on night-time aircraft movements can be found in the monthly impact reports:

munich-airport.com/impacts

Detailed information on the night-flight curfew can be found at:

munich-airport.com/night-flight

Aircraft movements¹⁾ / GRI A02 ✓

	2017			2016			2015		
	Total	Arrivals	Departures	Total	Arrivals	Departures	Total	Arrivals	Departures
Passenger flights, scheduled/charter	380,119	189,996	190,123	369,561	184,699	184,862	355,565	177,689	177,876
Domestic	87,977	43,965	44,012	87,000	43,521	43,479	85,115	42,571	42,544
International	292,142	146,031	146,111	282,561	141,178	141,383	270,450	135,118	135,332
Cargo flights, scheduled/charter	3,619	1,795	1,824	4,047	2,014	2,033	4,001	1,990	2,011
Domestic	1,518	800	718	1,515	810	705	1,475	772	703
International	2,101	995	1,106	2,532	1,204	1,328	2,526	1,218	1,308
Airmail flights, scheduled/charter	196	98	98	449	225	224	443	222	221
Domestic	196	98	98	449	225	224	443	222	221
International	-	-	-	-	-	-	-	-	-
General air traffic	20,571	10,363	10,208	20,373	10,272	10,101	19,902	10,062	9,840
Domestic	8,454	4,355	4,099	8,413	4,338	4,075	8,669	4,395	4,274
International	12,117	6,008	6,109	11,960	5,934	6,026	11,233	5,667	5,566
Total	404,505	202,252	202,253	394,430	197,210	197,220	379,911	189,963	189,948

¹⁾ Military flights are not included.

Cargo tonnage (commercial handling) / GRI A03 ✓

In t	2017			2016			2015		
	Cargo handled	Incoming cargo	Outgoing cargo	Cargo handled	Incoming cargo	Outgoing cargo	Cargo handled	Incoming cargo	Outgoing cargo
Cargo-only flights	52,011	16,875	35,136	62,056	17,956	44,099	55,668	16,922	38,746
Bellyhold cargo on passenger flights	310,820	136,641	174,179	272,441	113,912	158,529	261,719	108,863	152,856
Total on all flights	362,831	153,516	209,315	334,497	131,868	202,628	317,387	125,785	191,602

Munich Airport received 55.31 complaints for every one million passengers handled in 2017. Given a 5.5-percent increase in passenger figures, the number of complaints rose from 2,291 to 2,467 (+7.7 percent) compared to 2016. The key issues for the fiscal year 2017 were the categories of airport facilities, baggage collection, and passport and security checks. Complaints about airport facilities increased by over 50 percent compared to the previous year. The causes for these complaints included the relaunch of the website, the renovation of the bathroom facilities in Terminal 2 (low availability at times), and multiple PTS failures¹⁾ causing connecting flights to be missed. Long waiting times, the frequent output of baggage on the wrong baggage conveyor belt (Terminal 2), and a lack of contact persons in the baggage collection area are the reasons for an almost 25-percent increase in complaints in the area of baggage collection. The number of passengers providing feedback increased by 75 (+41 percent) at passport control in both terminal areas. The 10-percent increase in complaints about security checks was due to the test lining in front of the checkpoint in Terminal 2. The switchover to the new system means it is no longer possible to directly compare key issues with the figures from 2015. The categories were redefined based on the passenger chain.

¹⁾ PTS: Passenger transport system that links Terminal 2 to the satellite building

Dialog management / GRI standard 102-43, 102-44 ✓

Number of entries	2017	2016	2015
Total complaints	2,467	2,291	1,677
Number of complaints on key issues			
Airline	191	218	
Airport facility	761	492	
Baggage collection	232	188	
Parking	82	197	
Passport control	258	183	
Security checks	350	318	

Firefighting service deployments / GRI standard 417-1

	2017	2016	2015
Total alarms	3,555	3,487	3,891
False alarms	737	649	658
Number of deployments	2,818	2,838	3,233
Technical support jobs	1,846	1,978	1,970
Security monitoring jobs ¹⁾	833	740	1,149
Firefighting jobs	139	120	114
First-responder deployments ²⁾	164	155	123

¹⁾ On-call service where the Airport Rescue and Firefighting service attends certain situations with particularly high risk levels in order to provide immediate support should a risk occur.

²⁾ First aid until the arrival of the public rescue service.

Donations and sponsorship¹⁾ / GRI standard 413-1

Proportion of total budget in %	2017	2016	2015
Sport	39	35	36
Social welfare	30	31	30
Education	12	15	17
Culture	16	18	17
Environment (new from 2016)	3	1	-

¹⁾ The annual sponsoring budget is linked to FMG's external sales.

Employees covered by collective bargaining agreements / GRI standard 102-41; 202-01 ✓

	2017		2016		2015	
	Group	FMG	Group	FMG	Group	FMG
Total number of employees covered by collective bargaining agreements	9,874	4,370	8,769	4,147	8,139	4,191
Proportion of total employees in % ¹⁾	95.93	96.94	94.23	93.55	91.40	96.81

¹⁾ All percentages are based on the total number of employees including apprentices, workers in minor employment, temporary workers, and interns.

Age structure of employees / GRI standard 405-1 ✓

Group	2017						2016		2015	
	Women	Pro-portion in % ²⁾	Men	Pro-portion in % ²⁾	Total	Pro-portion in % ²⁾	Total	Pro-portion in % ²⁾	Total	Pro-portion in % ²⁾
Age structure of employees¹⁾										
Under 30 years	647	6.87	869	9.23	1,516	16.11	1,401	16.48	1,259	15.71
30 to 50 years	1,778	18.89	3,235	34.37	5,013	53.26	4,510	53.05	4,422	55.16
Over 50 years	726	7.71	2,158	22.93	2,884	30.64	2,591	30.48	2,335	29.13
Total	3,151	33.47	6,262	66.53	9,413	100.00	8,502	100.00	8,016	100.00

FMG	2017						2016		2015	
	Women	Pro-portion in % ²⁾	Men	Pro-portion in % ²⁾	Total	Pro-portion in % ²⁾	Total	Pro-portion in % ²⁾	Total	Pro-portion in % ²⁾
Age structure of employees¹⁾										
Under 30 years	217	5.06	230	5.36	447	10.41	403	9.54	383	9.31
30 to 50 years	561	13.07	1,565	36.46	2,126	49.53	2,176	51.53	2,231	54.22
Over 50 years	201	4.68	1,518	35.37	1,719	40.05	1,644	38.93	1,501	36.48
Total	979	22.81	3,313	77.19	4,292	100.00	4,223	100.00	4,115	100.00

¹⁾ Reporting date: December 31; figures exclude apprentices, workers in minor employment, temporary workers, and interns.

²⁾ All percentages are based on the total number of employees as per ¹⁾.

Managers / GRI standard 405-1 ✓

Group	2017		2016		2015	
	Proportion in %	Proportion in %	Proportion in %	Proportion in %	Proportion in %	Proportion in %
Total managers	744	7.90¹⁾	676	7.92¹⁾	674	8.41¹⁾
Women	190	2.02 ¹⁾	170	1.99 ¹⁾	169	2.11 ¹⁾
Men	554	5.89 ¹⁾	506	5.93 ¹⁾	505	6.30 ¹⁾
Age structure of managers						
Under 30 years	42	5.65 ²⁾	19	2.81 ²⁾	26	3.86 ²⁾
30 to 50 years	408	54.84 ²⁾	370	54.98 ²⁾	376	55.79 ²⁾
Over 50 years	294	39.52 ²⁾	282	41.72 ²⁾	272	40.36 ²⁾

FMG	2017		2016		2015	
	Proportion in %	Proportion in %	Proportion in %	Proportion in %	Proportion in %	Proportion in %
Total managers	406	9.46¹⁾	394	9.33¹⁾	395	9.60¹⁾
Women	62	1.44 ¹⁾	58	1.37 ¹⁾	55	1.34 ¹⁾
Men	344	8.01 ¹⁾	336	7.96 ¹⁾	340	8.26 ¹⁾
Age structure of managers						
Under 30 years	5	1.23 ²⁾	5	1.27 ²⁾	6	1.52 ²⁾
30 to 50 years	187	46.06 ²⁾	191	48.48 ²⁾	195	49.37 ²⁾
Over 50 years	214	52.71 ²⁾	198	50.25 ²⁾	194	49.11 ²⁾

¹⁾ Reporting date December 31: Proportion of employees who are managers

²⁾ Proportion of managers relative to the total number of managers

Parental leave taken¹⁾ / GRI standard 401-3 ✓

Group	2017			2016	2015	FMG	2017			2016	2015
	Women	Men	Total	Total	Total		Women	Men	Total	Total	Total
Parental leave taken	126	117	243	176	179	Parental leave taken	71	67	138	115	88
Part-time parental leave taken	36	8	44	45	35	Part-time parental leave taken	29	7	36	36	32

¹⁾ Number of employees who have taken parental leave in the year under review. Figures exclude apprentices, workers in minor employment, temporary workers, and interns. 2017 without HSD

Due to the significant expense of evaluating the various parental leave models manually (duration of parental leave, split of parental leave), the number of individuals returning from parental leave, along with the number of resignations following parental leave, have not been recorded.

Employee turnover: starters and leavers¹⁾ / GRI standard 401-1 ✓

Group	2017				2016		2015		FMG	2017				2016		2015	
	Starters	Proportion in % ²⁾	Leavers	Proportion in % ²⁾	Starters	Leavers	Starters	Leavers		Starters	Proportion in % ²⁾	Leavers	Proportion in % ²⁾	Starters	Leavers	Starters	Leavers
Starters and leavers by age group																	
Under 30 years	861	39.05	513	40.46	727	502	650	414	Under 30 years	133	49.63	41	18.64	103	33	117	50
30 to 50 years	1,077	48.84	515	40.62	574	346	491	302	30 to 50 years	122	45.52	90	40.91	125	48	82	46
Over 50 years	267	12.11	240	18.93	113	154	100	162	Over 50 years	13	4.85	89	40.45	14	66	8	78
Total	2,205	100.00	1,268	100.00	1,414	1,002	1,241	878	Total	268	100.00	220	100.00	242	147	207	174
Starters and leavers by gender																	
Male	1,384	62.77	779	61.44	863	565	790	490	Male	163	60.82	158	71.82	157	112	152	126
Female	821	37.23	489	38.56	551	437	451	388	Female	105	39.18	62	28.18	85	35	55	48

¹⁾ Including apprentices, excluding workers in minor employment, temporary workers, and interns.

²⁾ All percentages are based on the total number of starters/leavers among the employees as per ¹⁾.

Turnover rate¹⁾ / GRI standard 401-1 ✓

In %	2017		2016		2015	
	Group	FMG	Group	FMG	Group	FMG
Turnover rate	13.37	5.01	11.41	3.42	10.70	4.14

¹⁾ The turnover rate reflects the ratio of leavers to the number of employees (as an annual average including apprentices and excluding workers in minor employment, temporary workers, and interns).

Average hours of training¹⁾ / GRI standard 404-1 ✓

Average hours of training per employee	2017 ⁵⁾		2016 ⁴⁾		2015 ^{2), 4)}	
	Group	FMG	Group	FMG	Group	FMG
Average hours of training per employee	18.91	13.35	15.76	12.65	12.91	11.21
Per male employee	20.43	14.51	16.91	13.96	14.26	12.62
Per female employee	15.95	9.41	12.55	7.95	9.07	5.99
Per manager ³⁾	17.37	13.12	23.92	12.67	17.34	7.58
Per employee (without managerial responsibilities)	21.00	16.95	15.16	12.54	12.80	11.59

¹⁾ Average number of hours spent on professional development, training, and seminars (excluding aviation security courses) per employee (excluding apprentices, employees in minor employment, temporary workers, and interns) as at the reporting date, December 31.

²⁾ Errors identified whilst our data was being audited have been corrected.

³⁾ First- to fourth-tier managers excluding the Executive Board at FMG.

⁴⁾ Excluding Terminal 2 oHG.

⁵⁾ Excluding HSD, Infogate, and FM Bau GmbH

Occupational health and safety / GRI standard 403-2, 403-3 ✓

Group ^{1), 7)}	2017	2016	2015 ²⁾
Accident statistics³⁾			
Reportable occupational accidents	225	195	243
Number of resulting days of absence ⁴⁾	5,761	4,331	4,873
Fatal occupational accidents	0	0	0
Rate per 1,000 workers ⁵⁾	26.63	24.50	32.51
Employees in ground handling in Munich⁶⁾			
Accident statistics³⁾			
Reportable occupational accidents	112	89	106
Number of resulting days of absence ⁴⁾	2,964	2,304	2,688
Fatal occupational accidents	0	0	0
Rate per 1,000 workers ⁵⁾	56.60	46.32	52.49

¹⁾ Including apprentices, workers in minor employment, temporary workers, and interns.

²⁾ Errors identified whilst our data was being audited have been corrected.

³⁾ Injuries requiring first aid are recorded as soon as employees attend Munich Airport's medical center.

⁴⁾ These are calendar days and are counted from the day after the occupational accident.

⁵⁾ Reportable occupational accidents x 1,000 / annual average actual employee capacity [EC].

⁶⁾ Ground handling employees working for FMG and employees and temporary workers at AeroGround.

⁷⁾ 2017 without HSD

Sick leave¹⁾ / GRI standard 403-2 ✓

Group	2017			2016	2015
	Women	Men	Total	Total	Total
In %					
Illness rate ²⁾	7.27	8.15	7.88 ³⁾	7.9	7.71
FMG					
2017					
In %					
Illness rate ²⁾	5.1	8.65	7.94	8.14	8.22

¹⁾ Including apprentices, excluding workers in minor employment, temporary workers, and interns. 2017 without Infogate, HSD and FM Bau GmbH.

²⁾ Hours off sick in relation to planned working hours, including rehabilitation, therapy programs, treatment, and so on. Relates to the total number of employees as per ¹⁾.

³⁾ AeroGround Berlin and MAI are included in the total but are not shown in gender-specific terms.

FMG ¹⁾	2017	2016	2015
Accident statistics³⁾			
Reportable occupational accidents	76	71	84
Number of resulting days of absence ⁴⁾	1,985	2,106	2,492
Fatal occupational accidents	0	0	0
Rate per 1,000 workers ⁵⁾	19.02	18.17	21.98
Employees in ground handling in Berlin⁷⁾			
Accident statistics³⁾			
Reportable occupational accidents	29		
Number of resulting days of absence ⁴⁾	820		
Fatal occupational accidents	0		
Rate per 1,000 workers ⁵⁾	66.87		

Aircraft handling on the ground is a critical area for occupational health and safety measures at Munich Airport. This is why FMG publishes additional accident statistics for employees who work in aircraft handling.

Occupational illnesses¹⁾ / GRI standard 403-2, 403-3 ✓

In %	2017		2016		2015	
	Group	FMG	Group	FMG	Group	FMG
Reported occupational illnesses	0	0	6	4	5	5

¹⁾ Including apprentices, excluding workers in minor employment, temporary workers, and interns. 2017 without HSD.

Employees with disabilities / GRI standard 405-1 ✓

Group	2017	2016	2015	FMG	2017	2016	2015
	Number of employees with limiting disabilities ¹⁾	677	645		644	Number of employees with limiting disabilities ¹⁾	484
Employees with severe disabilities in % ²⁾	7.25	7.11	7.06	Employees with severe disabilities in % ²⁾	10.95	12.28	11.39

¹⁾ Degree of disability of at least 30 within the meaning of equality under Book IX of the Social Security Code.

²⁾ Proportion of employees with disabilities as per ¹⁾ based on the average total employees, including apprentices and workers in minor employment and excluding temporary workers and interns. 2017 without HSD.

Nationalities¹⁾ / GRI standard 405-1 ✓

Group	2017				2016		2015		FMG	2017				2016		2015	
	Women	Men	Total	Proportion in % ²⁾	Total	Proportion in % ²⁾	Total	Proportion in % ²⁾		Women	Men	Total	Proportion in % ²⁾	Total	Proportion in % ²⁾	Total	Proportion in % ²⁾
Employee nationalities, overall picture	3,292	6,396	9,688		8,776		8,285		Employee nationalities, overall picture	1,046	3,400	4,446		4,367		4,261	
German nationals	2,605	4,886	7,491	77.32	6,920	78.85	6,775	81.77	German nationals	993	2,981	3,974	89.38	3,898	89.26	3,806	89.32
Foreign nationals	687	1,510	2,197	22.68	1,856	21.15	1,510	18.23	Foreign nationals	53	419	472	10.62	469	10.74	455	10.68
Most represented groups of foreign nationals									Most represented groups of foreign nationals								
Turkey	74	454	528	5.45	460	5.24	432	5.21	Turkey	1	271	272	6.12	268	6.14	270	6.34
Hungary	23	160	183	1.89	178	2.03	0	0.00	Hungary	1	1	2	0.04	33	0.76	31	0.73
Italy	35	97	132	1.36	118	1.34	108	1.30	Italy	7	21	28	0.63	28	0.64	29	0.68
Romania	64	62	126	1.30	50	0.95	66	0.80	Romania	-	-	-	-	-	-	-	-
Croatia	33	84	117	1.21	-	-	-	-	Croatia	1	5	6	0.13	14	0.32	13	0.31
Greece	38	55	93	0.96	29	0.95	77	0.93	Greece	3	15	18	0.40	19	0.44	17	0.40

¹⁾ Reporting date: December 31: Total workforce including apprentices, excluding workers in minor employment, temporary workers, and interns.

²⁾ All percentages are based on the total number of employees as per ¹⁾.

Employees' areas of residence¹⁾ / GRI standard 102-8, 401-1 ✓

Administrative districts	Group				FMG			
	2017	Proportion in % ²⁾	2016	2015	2017	Proportion in % ²⁾	2016	2015
Freising	2,376	24.53	2,295	2,077	903	20.31	876	845
Erding	1,880	19.41	1,862	1,809	1,065	23.95	1,066	1,052
Munich	1,866	19.26	1,820	1,702	776	17.45	753	716
Landshut	1,257	12.97	1,221	1,168	696	15.65	670	649
Pfaffenhofen	147	1.52	155	141	92	2.07	92	87
Ebersberg	156	1.61			104	2.34		
Other districts	2,006	20.71	1,423	1,388	810	18.22	910	912
Total	9,688	100.00	8,776	8,285	4,446	100.00	4,367	4,261

¹⁾ Total workforce including apprentices, excluding workers in minor employment, temporary workers, and interns, who lived in each administrative district as at the reporting date of December 31.

²⁾ All percentages are based on the total number of employees as per ¹⁾.

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De-icers used¹⁾ / GRI standard 301-1, 301-2; GRI A06 ✓

	2016/2017	2015/2016	2014/2015
Apron de-icer in t ²⁾	3,502	2,041	3,067
Aircraft de-icer (Safewing Type I) in m ³	4,071	3,233	4,107
Aircraft de-icer (Safewing Type IV) in m ³	787	783	919
Recycling rate of Type I de-icer used in %	61.4	63.9	68
Number of days of winter operations	65	47	57

¹⁾ Seasonal database/fluctuations in year-on-year comparisons are linked to winter weather conditions.

²⁾ Liquid potassium formate and sodium formate granules.

The company responsible for de-icing operations at Munich Airport, Gesellschaft für Enteisung und Flugzeugschleppen am Flughafen München mbH (EFM), uses glycol-based de-icer that is sprayed onto aircraft by de-icing vehicles. Low-viscosity Type I de-icer is mixed with water in a ratio of 55:45. It is then heated and applied to the aircraft at a temperature of 85 degrees Celsius. Type IV de-icer contains thickeners, making it viscous. It is sprayed on cold and undiluted.

Energy consumption and emissions¹⁾ / GRI standard 301-1, 302-1, 302-2, 302-4, 302-5, 305-1, 305-2, 305-3 ✓

	2017			2016			2015		
	GJ	MWh	CO ₂ [t]	GJ	MWh	CO ₂ [t]	GJ	MWh	CO ₂ [t]
Scope 1: direct energy consumption/emissions									
Natural gas gas/diesel generating sets CHPP	414	115	23	8,193	2,276	455	601,146	166,985	33,352
Natural gas gas/gasoline generating sets CHPP	1,322,438	367,344	73,395	1,273,319	353,700	70,644	608,234	168,954	33,745
Natural gas boiler plant	18,261	5,073	1,014	10,564	2,934	586	11,956	3,321	663
Fuel oil gas/diesel gensets	19,080	5,300	1,414	16,943	4,707	1,256	62,086	17,246	4,601
Fuel oil boiler plant	5,855	1,626	434	950	264	70	140	39	11
LPG	1,912	531	124	4,046	1,124	262	3,956	1,099	256
Fuel oil emergency gensets	1,584	440	117	1,526	424	113	1,958	544	145
Natural gas consumption EFM ²⁾	6,681	1,856	371	7,855	2,182	436	9,943	2,762	552
Diesel and gasoline	159,103	44,195	11,777	154,001	42,778	11,441	154,764	42,990	11,503
Total scope 1	1,535,329	426,480	88,668	1,477,396	410,388	85,262	1,454,184	403,940	84,826
Scope 2: Indirect energy consumption/emissions³⁾									
Purchased power ⁴⁾	268,075	74,465	43,190	278,606	77,391	45,428	292,421	81,228	49,468
Purchased district heat ⁵⁾	124,560	34,600	3,685	126,972	35,270	3,756	128,527	35,702	3,802
Purchased natural gas ⁶⁾	60,323	16,756	3,348	65,449	18,180	3,631	34,160	9,489	1,895
Power supplied to outside companies ⁷⁾	-185,775	-51,604	-29,930	-191,987	-53,330	-31,305	-207,407	-57,613	-35,086
Heat supplied to outside companies	-102,056	-28,349	-5,340	-131,419	-36,505	-6,799	-139,057	-38,627	-7,054
Cooling supplied to outside companies	-15,540	-4,317	-501	-18,742	-5,206	-609	-21,380	-5,939	-725
Natural gas supplied to outside companies	-60,323	-16,756	-3,348	-65,449	-18,180	-3,631	-34,160	-9,489	-1,895
Purchased power transmitted ⁸⁾	38,063	10,573	6,132	35,923	9,979	5,857	37,865	10,518	6,406
Total scope 2¹³⁾	9)	9)	17,237	9)	9)	16,329	9)	9)	16,811
Scope 3: other indirect energy consumption/emissions (by third parties)	10)	10)		10)	10)		10)	10)	
Electrical energy purchases of outside companies	-	-	29,930	-	-	31,305	-	-	35,086
Heat purchases of outside companies	-	-	5,340	-	-	6,799	-	-	7,054
Cooling purchases of outside companies	-	-	501	-	-	609	-	-	725
Natural gas purchases of outside companies	-	-	3,348	-	-	3,631	-	-	1,895
Fuel for outside companies	-	-	7,036	-	-	6,680	-	-	6,806
Subtotal	9)	9)	46,154	9)	9)	49,024	9)	9)	51,565
Total annual CO₂ emissions open to influence¹¹⁾			152,059			150,614			153,202
Air traffic (LTO cycle) ¹²⁾	-	-		-	-		-	-	
Take-off	-	-	55,792	-	-	55,337	-	-	52,614
Climb out	-	-	94,765	-	-	93,711	-	-	89,241
Idle (rolling on the apron)	-	-	165,488	-	-	162,115	-	-	152,431
Approach	-	-	114,575	-	-	113,731	-	-	108,362
APUs (PCA taken into account) ¹⁴⁾	-	-	32,359	-	-	39,803	-	-	42,256
Engine test runs	-	-	793	-	-	715	-	-	640
Feeder traffic ¹⁵⁾	-	-	36,661	-	-	39,439	-	-	40,176
Total scope 3			546,588			553,874			534,744

¹⁾Data collected and reported according to the GHG protocol WRI/WBCSD Greenhouse Gas Protocol Corporate Accounting and Reporting Standard. Principle of operational control applied. To the extent that they are subject to emissions trading, conversion parameters, such as heat values and emission factors in particular, are determined according to the provisions of the German Emissions Trading Authority (DEHSt). Other conversion parameters are based on the latest publications from the German Federal Environment Agency (UBA).

²⁾EFM: Gesellschaft für Enteisung und Flugzeugschleppen am Flughafen München [company responsible for de-icing at Munich Airport]; associated company.

³⁾Scope 2 emissions reported using the GHG Protocol Scope 2 Guidance (2015) in accordance with the «location-based» method based on emission factors for domestic consumption in Germany, electricity mix, and district heating mix. Net scope 2 emissions with specific emission factors are 0.580 kg/kWh for electricity and 0.213 kg/kWh for district heat from fossil fuels. The total purchased district heat consists of 50 percent district heat from fossil fuels and 50 percent district heat from biomass with a specific emission factor of 0 kg/kWh.

⁴⁾45.29 percent of electricity from renewable energy sources (as of 2017 according to Section 42 of the German Energy Act [EnWG]).

⁵⁾50 percent of district heat is purchased from biomass directly from the biomass thermal power plant in Zolling.

⁶⁾Solely natural gas purchased (baseline year 2017); no renewable energy sources.

⁷⁾Including the quantity transmitted to outside companies.

⁸⁾Total power transmitted to outside companies and subsidiaries. The specific emission factor used for purchased power was also used here.

⁹⁾For physical reasons it is not practical to add heat, cooling energy, and electricity in energy units. The sum can only be used to draw very limited conclusions.

¹⁰⁾No information as values cannot be specified for all items.

¹¹⁾Sum of Scope 1, Scope 2, and the subtotal of Scope 3a; this is the comparative value for the reference value taken from the baseline year of 2005 at 162,046 tonnes. The CO₂ reference value must not be exceeded in spite of expansion plans and the expected growth.

¹²⁾Emissions calculated using the LASPORT model for classifying flight operations in accordance with the LTO cycle.

¹³⁾Scope 2 emissions calculated using the GHG Protocol Scope 2 Guidance (2015) in accordance with the «market-based» method results in a figure of 10,397 t of CO₂. This is based on an emission factor of 0.370 kg/kWh for the Munich Airport network. The other emission factors stated in footnote 3 remain unchanged.

¹⁴⁾Calculated from aircraft movements using the LASPORT model, subsequently taking into account the APU emissions avoided by using PCA systems.

¹⁵⁾Feeder traffic includes the road traffic caused by passengers, visitors, and employees around the airport.

Generated and purchased power / GRI standard 302-5, 305-1, 305-2, 305-5

Munich Airport produces around 80 percent of its annual heat energy requirements in the Group's own block heat and power plant. Aside from a tiny amount that is generated in peak load boilers, the airport meets the remainder of its heating needs by purchasing district heat from a public utility company in Freising. Since early 2011, 50 percent of this purchased district heat – roughly 18 gigawatt hours (GWh) – has been generated by a biomass thermal power plant in Zolling. This procurement is secured by a long-term supply option for the coming years. This district heat obtained from biomass is renewable and climate neutral, and cuts carbon emissions by around 3,700 t per year.

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Energy intensity coefficient¹⁾ / GRI standard 302-3 ✓

In kWh/passenger	2017	2016	2015
Power consumption	5.24	5.51	5.42

¹⁾ Power consumption is responsible for more than 2/3 of the total CO₂ emissions produced by energy-induced processes in the airport [excluding emissions generated by airlines]. Furthermore, it is only very slightly linked to weather conditions. For this reason, the power consumption per passenger is the most useful indicator for energy consumption at Munich Airport.

The power consumption is made up of total power consumption of all buildings and installations on the campus, including hosted electricity. It includes power consumption by FMG and its subsidiaries, consumption by external companies, and all losses at the low-voltage level.

Greenhouse gas emissions intensity¹⁾ / GRI standard 305-4 ✓

In kg/passenger	2017	2016	2015
CO ₂ emissions	3.41	3.56	3.74

¹⁾ The calculation of CO₂ emissions per passenger enables the physically meaningful addition of the various forms of primary and secondary energy used at the airport in relation to passenger figures.

The CO₂ emissions from scope 1 and 2 are added, as well as power, heat, cooling energy, natural gas, and fuel consumption by external companies. The figure therefore includes all emissions that must not exceed the targets for carbon-neutral growth.

Other greenhouse gas emissions / GRI standard 305-3, 305-6 ✓

CH ₄ , N ₂ O and greenhouse gases containing fluorine in CO ₂ equivalent ¹⁾ [t]	2017	2016	2015
LTO cycle	4,342	4,285	4,061
Feeder traffic ²⁾	323	348	389
APUs ³⁾	327	402	426
Engine test run ⁴⁾	8	7	6
Small appliances ⁵⁾ in buildings	656	476	409
Mobile systems [vehicles]	271	184	149

¹⁾ Conversion of emissions into CO₂ equivalents in accordance with the IPCC Fourth Assessment Report.

²⁾ Feeder traffic includes the traffic caused by passengers, visitors, and commuters in the area around the airport.

³⁾ Calculated from flight movements using the LASPORT model, taking into account the APU remaining term using PCA systems.

⁴⁾ Estimates.

⁵⁾ Damage to a turbo chiller resulted in the leakage of 148 kg of R134a tetrafluoroethane, which had been either partially or completely combusted.

Measured pollutant concentrations / GRI standard 305-7; GRI A05

In µg/m ³	Current legal annual limit value	2017	2016	2015
NO ₂ concentration [nitrogen dioxide]	40	22	20	20
SO ₂ concentration [sulfur dioxide] ¹⁾	20	2	2	2
PM ₁₀ concentration [particulate matter]	40	16	12	15
PM _{2,5} concentration	25	11	9	11

¹⁾ Statutory threshold to protect vegetation, only strictly applicable away from urban centers and transport facilities, but complied with here as well as the immission value specified by the administrative regulation TA Luft for protecting human health (50 µg/m³).

Air pollutant emissions / GRI standard 305-7; GRI A05

In t	2017	2016	2015
NO _x – air traffic (LTO cycle)	1,556.9	1,509.2	1,450.3
NO _x – feeder traffic ¹⁾	83.8	81.1	91.3
SO _x – air traffic (LTO cycle)	109.2	107.8	102.1
SO _x – feeder traffic ¹⁾	0.2	0.2	0.2
PM ₁₀ – air traffic (LTO cycle)	13.1	12.3	11.8
PM _{2,5} – feeder traffic ¹⁾	1.2	1.5	1.5

¹⁾ Feeder traffic includes the traffic caused by passengers, visitors, and commuters in the area around the airport.

Total drinking water consumption^{1), 2)} / GRI standard 303-1

	2017	2016	2015
Water purchased from utility in m ³	1,016,708	1,050,791	1,042,166
Water consumption per 1,000 traffic units in m ³	21.0	23.0	23.6

¹⁾ Includes all companies on the campus.

²⁾ Values are derived as follows: Water metering in m³ measured at the drinking water feed points (transfer points at water metering shafts 1 through 4) from the Moosrain water utility company to Munich Airport.

Total wastewater supply^{1), 2)} / GRI standard 303-3, 306-1

	2017	2016	2015
Total wastewater discharged from Munich Airport to sewage plant of the Erdinger Moos wastewater utility company in m ³	2,336,313	2,278,602	2,344,085
Wastewater consumption per 1,000 traffic units in m ³	48.3	49.8	53.0

¹⁾ Includes all companies on the campus.

²⁾ The wastewater discharged to the sewage plant consists of domestic wastewater, industrial wastewater, mixed water, and de-icing waste.

Water sources / GRI standard 303-1, 303-2

Munich Airport sources its drinking water from the Moosrain water utility company, which extracts it from the tertiary strata via seven water wells at depths of between 94 and 160 meters. The water wells are located in water protection areas at «Obere Point» [surface area 33 ha] and «Oberdingermoos» [surface area 36 ha] in the Oberding municipality.

Water samples / GRI standard 303-1; GRI A04

Under the provisions of the planning approval notice Munich Airport is required to test the water surrounding the airport. Securing evidence regarding the quantity (water level) and quality (water quality) of groundwater is particularly important. FMG measures the water levels of more than 300 groundwater and 17 surface water measurement points on an ongoing basis. Water quality is determined at 18 groundwater and eleven surface water measurement points. All implemented measures are summarized in a report, evaluated, and presented to the water authorities.

[munich-airport.com/
resource-management](http://munich-airport.com/resource-management)

Waste¹⁾ / GRI standard 306-2, 306-4

In t	2017	2016	2015	Point of disposal and reuse
Recycling				
Paper, cardboard, and cartons from aircraft ²⁾	-	-	-	Sorting facilities, paper factory in Munich/ Schrobenhausen (wastepaper recycling)
Paper, cardboard, and cartons from buildings	1,574	1,654	1,653	
Mixed reclaimed materials/waste for recycling from buildings	3,026	3,038	2,993	Sorting facilities, recycling firms in Eitting, Schwaig, Moosburg, and Munich
Mixed glass	176	178	165	
Wood	357	355	294	
Bulk waste	764	634	407	
Scrap metal containing electronic waste	630	378	279	
Other recyclables ³⁾	212	180	189	
Total recycling	6,739	6,417	5,980	
Other form of reuse (reuse of materials/energy)				
Food waste ⁴⁾	1,123	1,024	843	Biogas plant (energy recovery)
Waste from cleaning of aircraft cabin ⁵⁾	-	-	-	
Waste for disposal/prohibited liquids (terminal areas)	195	196	167	Munich North power plant (energy recovery)
Waste for disposal from buildings	633	596	513	
Building site waste (waste from demolition, conversion, renovation, and maintenance activities)	3,127	2,247	703	Recycling/disposal firms (material recycling/pit filling)
Hazardous waste (FMG fraction only, excluding mineral wool)	257	219	276	Recycling/disposal firms (material recycling) or hazardous waste specialists in Munich and Ebenhausen (energy recovery, secondary fuels)
Of which are subject to ADR (hazardous goods) rules ⁶⁾	199	180	186	
Other waste ⁷⁾	1,259	313	429	
Total material/energy recycling	6,594	4,595	2,931	
Landfill waste				
Insulators (mineral wool) ⁸⁾	432	309	186	
Total landfill	432	309	186	Spitzlberg, Landshut landfill
Total amount	13,765	11,321	9,097	

¹⁾ All quantities refer exclusively to the disposal processes organized by FMG waste management. This refers to the total figure reported (2017: 13,765 t).

²⁾ Disposal is no longer conducted by FMG waste management. Disposal and transport services were outsourced to a disposal company in April 2011.

³⁾ Foil, lightweight packaging, for example.

⁴⁾ Disposal of food waste from the Allresto catering area in Terminal 2 only.

⁵⁾ Waste from the cleaning of aircraft cabins and catering waste is processed by a disposal firm at the Munich North waste incineration plant/at the power plant in accordance with EC Regulation 1069/2009. Disposal is no longer FMG's responsibility and has been conducted by a specialist contractor working on behalf of the Erding animal carcass disposal association since January 2011.

⁶⁾ ADR (Accord européen relatif au transport international des marchandises dangereuses par route): European Agreement concerning the International Carriage of Dangerous Goods by Road.

⁷⁾ For example runway wear, refuse, old tires, rubber waste.

⁸⁾ Insulators that are collected at a disposal specialist contracted on behalf of the district of Freising and sent away for proper disposal (landfill). Figure increased in 2017 due to renovation/roof repair work (mineral wool).

Hazardous goods: checks and training courses / GRI standard 306-4

Operations at Munich Airport involve a number of substances that are harmful to the environment and water; these must be declared as hazardous goods and transported off site. The vehicles used for transporting hazardous goods were inspected to verify that they are in proper condition and are roadworthy and safe to operate. Employee training on the handling of hazardous goods is held at regular intervals in accordance with legal regulations. In the year under review, 2017, a total of 199 tonnes of waste (previous year: 180 tonnes) declared as hazardous goods were transported away for disposal.

Measured noise¹⁾ / GRI A07 ✓

In dB(A)	2017		2016		2015	
	Night ²⁾	Day	Night ²⁾	Day	Night ²⁾	Day
Measurement point (nearest municipality)						
Brandstahl (municipality of Hallbergmoos)	51	59	52	59	49	58
Pallhausen (town of Freising)	46	56	46	56	44	55
Reisen (municipality of Eitting)	48	55	48	55	48	56
Viehlaßmoos (municipality of Berglern)	44	52	44	54	45	55

¹⁾ Leq3 continuous sound level in dB(A) for the six busiest months at four aircraft noise measuring stations situated on each of the main flight paths.

²⁾ Hours from 10 p.m. to 6 a.m.

Noise complaints / GRI standard 102-44 ✓

	2017	2016	2015
Noise complaints received via telephone	248	277	174
Complainants	142	189	94

Population growth in neighboring communities¹⁾ / GRI A07 ✓

Number of residents	2016	2015	2014
Freising (District of Freising)	47,848	46,963	45,857
Marzling (District of Freising)	3,233	3,179	3,142
Oberding (District of Erding)	6,187	6,151	5,975
Hallbergmoos (District of Freising)	10,835	10,524	10,364

¹⁾ The reporting date is December 31 in each case.

Source: Bayerisches Landesamt für Statistik und Datenverarbeitung (Bavarian State Office for Statistics and Data Processing) – Statistikatlas Bayern (statistical atlas of Bavaria). Figures for 2017 were not available at the time of going to press.

«Green spaces»¹⁾ belonging to the airport but outside the airport fence / GRI standard 102-7, 304-3 ✓

In ha	2017	2016	2015
Additional «green spaces» in total	751	746	746
Compensatory mitigation areas, zone III	375 ¹⁾	374 ²⁾	374
Airport periphery, zone II	250	250	250
Ecological land reserve for future expansion measures	126	122	122

¹⁾ Green areas in Zones II and III that Flughafen München GmbH maintains as natural conservation areas (in contrast to rented farmland or other real estate).

²⁾ Although additional compensation measures were taken over an area of 2,000 m² in 2016, this does not impact the stated number of hectares in terms of the total size.

³⁾ Compensation areas covering 0.7 ha were commissioned and realized in 2017.

→ Noise measurement points, page 82

→ munich-airport.com/noise-protection