



# Environmental Management

Aena 2017





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# 1

## Management

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Your journey starts as soon as you first imagine it. The thrill of choosing the destination, planning dates, schedules... At Aena, we manage the way forward the same way you plan your trips, with the same excitement and with the intention of leaving as small a mark as possible on the planet. Let us show you how.





## Scope of the report

This report covers the year 2017 and spans our 46 airports and two heliports in Spain.

Also worth noting is the fact that the information reported here expands upon and complements that provided in the **2017 Corporate Responsibility (CR) Report**, such that because of the different publishing dates, the data published here might differ, since it is consolidated for the year 2017.

As for identifying the key material aspects for the company, the methodology used was described in detail in the 2017 CR report.

The primary environmental aspects identified in the materiality study are detailed more broadly in this document, and they are complemented with information on other aspects that despite not being material, form part of the company's environmental management.

**Aena SME, S.A. is a state-owned company that owns general-interest airports and heliports in Spain.**

## Our management

### Passenger, operations, and cargo traffic

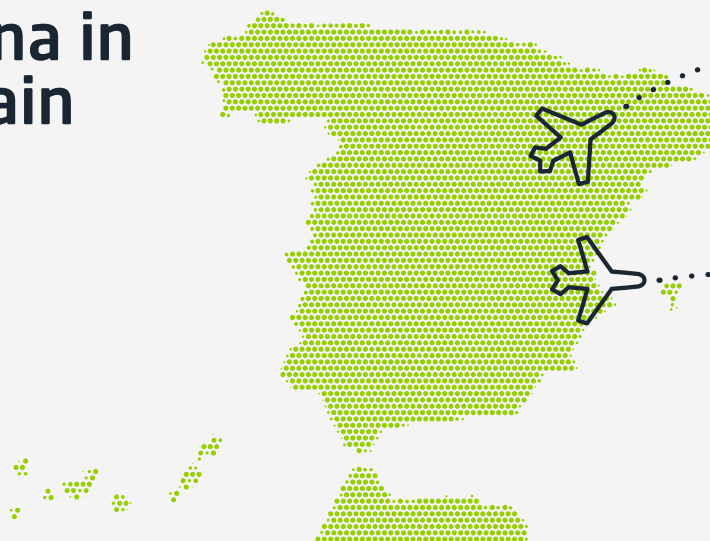
	2016	2017	change
<b>Passengers</b>	230,229,523	249,223,044	+8.2%
<b>Operations</b>	2,045,034	2,174,263	+6.3%
<b>Cargo (kg)</b>	795,575,212	918,305,644	+15%

Source: **Aena statistics**





## Aena in Spain



• **167.46km<sup>2</sup>**

Our facilities in Spain cover an approximate surface area of 167.46 square kilometers, equivalent to four times the size of Bilbao.



• **249M passengers**

We are also the world's leading airport operator by passenger traffic, handling over 249 million passengers in 2017, equivalent to 5.3 times the population of Spain.



## Challenges

The importance of tourism in Spain is indisputable, as this sector currently accounts for over 11% of the domestic GDP. Air transport is an essential component of this sector as 4 out of 5 international tourists who enter our country do so by airplane.

Aware of the challenges posed by this situation, and driven by the idea that it is possible to achieve sustainable air transport, we are working to incorporate environmental management into the activity at our airports so that we can coexist with our surroundings in the most environmentally-friendly way possible.

And so, in light of the positive forecast for future demand, Aena is cognizant of the importance of advancing toward sustainability in order to achieve it. But this poses a double challenge: offering the highest quality service in our activity while minimizing the impacts associated with it.

Which is why we are firmly committed to caring for and respecting the environment and its resources. Thanks to the effort of everyone at this company, we have achieved levels of efficiency and optimization in our processes that have allowed us to meet the ambitious environmental targets we set for ourselves.





# Key environmental RISKS, OPPORTUNITIES and TARGETS

## Key risks

The airport's activities are governed by strict environmental protection regulations. Particularly relevant is managing noise pollution, air quality and climate change, protecting water resources and managing waste, any of which could condition the airport's activities or growth.

## Opportunities/materiality

- Noise management: managing noise pollution is an area of utmost importance, once that affects the communities in the vicinity of airports.
- Energy efficiency and reducing GHG emissions: the fight against climate change is a key aspect of Aena's environmental management. We are working hard to design and implement efficient measures intended to help mitigate it. Energy efficiency, renewable energies and innovation in this field are the tools we are using to achieve the proposed targets.
- Environmental complaints: this issue, of great relevance internally and externally, informs us of potential negative impacts of the company's activity so that we can analyze them and come up with strategies to prevent and correct these impacts.

## Targets

- To improve the image that society has of us and the channels of communication with our stakeholders, especially in the area of noise management.
- To maximize the energy efficiency of our activity and contribute to minimize CO<sub>2</sub> emissions.
- To make airport management compatible with respecting the areas where they are located.
- To reinforce a model that ensures a sustainable coexistence with local communities and the environment, especially in the area of noise.
- To respond to society's needs, going beyond what is legally required and implementing innovative solutions.

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Note: \*\*base year 2015

Note: \*ATU is a parameter that reflects an airport's activity by considering its annual operations, passenger traffic and cargo volume.

ATU = Passengers + (100 \* Operations) + (10 \* tons of cargo)

## Key objectives 2020

- Reduce electricity consumption/ATU\* by 17.5%.\*\*
- Reduce emissions of CO<sub>2</sub>/ATU by 30%.\*\*
- Supply 60% of high-voltage and 100% of low-voltage electricity needs from renewables.
- 35% of Aena's operations will be conducted in airports certified to level 3-Optimization by Airport Carbon Accreditation, an international program that provides a common framework for managing CO<sub>2</sub> emissions at airports.
- Soundproof 25,000 dwellings and sensitive-use buildings included in the noise insulation schemes.
- Improve noise control and management by implementing noise monitoring systems and interactive noise maps at all airports with more than 50,000 operations.
- Enhance coordination and monitoring by implementing the measures contained in the Acoustic Easement Action Plans (including noise insulation activities) and the Strategic Noise Maps.





## Management Systems

The integration of our key values into our daily activity is a primary aspect of the sustainable development model we are striving to achieve.

In order to provide first-rate service to all the stakeholders we engage with and to ensure we face our responsibilities and commitments, we have made an additional effort to integrate into our practices the policies, processes and regulations involved in quality management, the environment and energy savings. The result of this effort was the Integrated Management System (IMS), implemented in 2014.

Our **Integrated Quality, Environmental and Energy Efficiency Policy** is crucial as it relates to these responsibilities in the areas of quality, environmental protection and energy efficiency. You can read this policy in its entirety by clicking [here](#).

The efficiency of the Integrated Quality, Environmental and Energy Efficiency Policy depends on everyone's commitment and involvement. Which is why Aena undertakes training and awareness campaigns to inform and involve the staff at its units and centers, the companies that carry out their activities

in them, and users themselves, in the IMS in order to ensure we respect our natural surroundings.

Monitoring the companies that work at Aena's airports also allows us to oversee their environmental performance, to engage in awareness initiatives and to convey Aena's commitment to and support of initiatives that seek to improve environmental management. As a result, contracts involving activities that may have an environmental impact are tracked through the environmental monitoring program, which includes visits to facilities to assess compliance with the Environmental Monitoring Plan and all of its related aspects (contractual, regulatory, etc.).

## Environmental Certificates

Our airports have received several certifications. This has required undergoing exhaustive yearly audits, which are primarily intended to verify the implementation of the corresponding system, its procedures and how its activities are helping us achieve our objectives.



Energy Management System (ISO 50001)



Environmental ISO 14001



EMAS Regulation



Carbon Footprint (ISO 14064)



Airport Carbon Accreditation Program (ACI EUROPE)

## Memberships



FTSE4Good

The well-known FTSE4Good international sustainability index has highlighted AENA's climate strategy and the management of our carbon footprint.



Network Spain  
WE SUPPORT

As an additional step toward our commitment to responsibility, we are members of the Global Compact and accept the commitments laid out in its ten principles.



Although it is not a membership in the strict sense, we are working to align our business model with the Sustainable Development Goals of the United Nations.

# 2

## Energy and climate change

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We are used to traveling with our bags full of things that we end up not needing. Don't forget anything, but bring only the essentials. It will take a lot of energy to make this trip happen, but we will try to use as much of the energy that we get for free every day from natural resources like the sun, the wind and the Earth's internal heat. The trip can be as sustainable as you want.







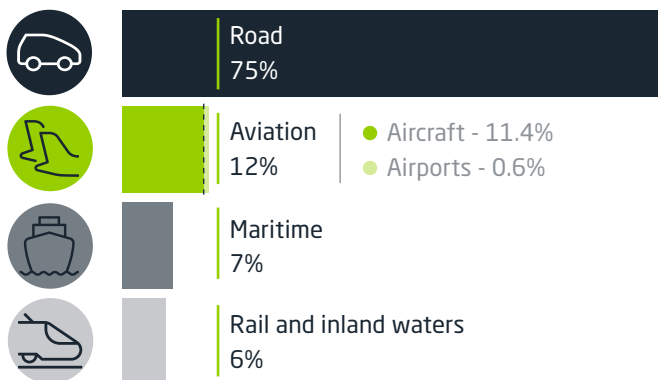
# Emissions

Climate change has become one of the most pressing long-term environmental problems at the global level, and mitigating and adapting to the effects that are already present is one of the greatest challenges to nations and organizations around the world.

Of all global emissions, 2% are attributable to the aviation industry, but if we expand the footprint to the entire transportation industry, these emissions account for 12%.

Of the emissions attributable to aviation, 95% are from aircraft and the rest are from emissions directly under the control of airports, in whose facilities take place numerous activities, the supply chains for which involve a large number of agents.

## Allocation of global emissions in the transportation industry



The **main sources of Greenhouse Gas (GHG) emissions under Aena's control** can be grouped into:

### Emissions from stationary combustion

Created by: diesel generators, portable generators, boilers, firefighting service (FFS) exercises and auxiliary pumps for firefighting water tanks.

### Combustion in moving sources

Includes both light and heavy vehicles belonging to the airport.

### Electricity

Indirect emissions associated with the use of electricity by activities carried out at the airport (climate control, lighting and the operation of various facilities).





### Aena Emissions

#### Scope 1

Includes direct emissions, that is, those originating in sources or processes controlled by Aena at the airport, meaning that the airport has a direct influence on them.

The emissions included in this scope are those for stationary combustion, moving combustion and potential leaks of refrigerants with HFCs.

#### Scope 2

Includes the indirect emissions that are produced to generate the electricity that is purchased and consumed by our airports.

### Third-party emissions

#### Scope 3

Includes all other indirect emissions, like those from the aircraft of the airlines that operate at the airport during the LTO (landing-takeoff) cycle, and the vehicles and machinery that provide the handling services to the passengers and aircraft at the airport, the energy consumed by the concessionaires and the access roads. It also includes employee trips.



## Certificación Airport Carbon Accreditation

Several Aena airports take part in the Airport Carbon Accreditation program of the ACI (Airports Council International), calculating and reporting their carbon footprint. This program currently provides the only certification specific to airports in this area, and is based on the GHG Protocol methodology.

### 2017 Renewed Airport Carbon Accreditations

- ✓ Adolfo Suárez Madrid-Barajas ..... Level 2
- ✓ Barcelona-El Prat ..... Level 2
- ✓ Palma de Mallorca ..... Level 2
- ✓ Málaga-Costa del Sol ..... Level 1
- ✓ Menorca ..... Level 1
- ✓ Lanzarote ..... Level 1

Our intention is to increase the number of participating airports and the accreditation level. In 2018, we expect to add the airports of Santiago and Alicante-Elche to the program, and to raise the level of the Lanzarote Airport.

### Goal 2030

Likewise, in keeping with our climate change strategy, we have set the goal of having the airports of Adolfo Suárez Madrid-Barajas and Barcelona-El Prat be carbon neutral (level 3+) by 2030.



Airports are responsible for scopes 1 and 2, but in the case of scope 3, Aena can only exert an influence by inserting clauses into contracts, raising the awareness of contractors or by other indirect means.

In 2017, the emissions in scopes 1 and 2, calculated using the market criterion, were 264,057 tCO<sub>2</sub>e, a figure that is below the previous year's. This decrease was achieved

thanks to the energy efficiency measures taken at the airports, as well as by buying electricity for the airport network that is certified to come from 40% renewable sources.



#### Direct emissions of greenhouse gases (GHG) (Scope 1) and indirect emissions of GHG from electricity production (Scope 2)

2017	tn CO <sub>2</sub>
<b>Scope 1</b>	19,362
<b>Scope 2</b>	244,695
<b>Total scopes 1 &amp; 2</b>	<b>264,057</b>

#### Main indirect greenhouse gas emissions (Scope 3)

2017	tn CO <sub>2</sub>
<b>Aircraft LTO cycle</b>	2,210,374
<b>APUs</b>	48,447
<b>Handling equipment</b>	28,707
<b>Total scope 3</b>	<b>2,287,528</b>

Note: The figures obtained for the CO<sub>2</sub> emissions calculation differ from those published in the 2017 Annual CR Report and previous reports, since the former were updated by using the market criterion for emissions caused by electricity consumption.

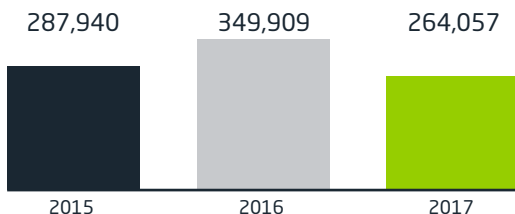
For more information on Aena's emissions, you can check our climate change questionnaire at the Carbon Disclosure Project (CDP):

<https://www.cdp.net/en>

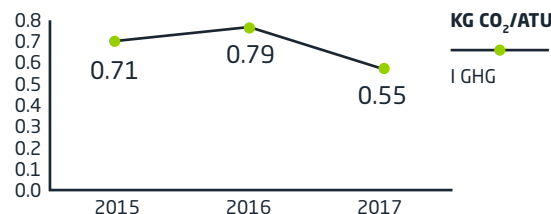




Aena emissions tCO<sub>2</sub>e - Scopes 1 & 2



Intensity of Aena's emissions - Scopes 1 & 2



↓ 30%

Reduction in emissions (kg) of CO<sub>2</sub>/ATU in 2016-2017.

## Our plan to combat climate change

As a sign of our firm commitment to face the problems created by climate change, in 2017 Aena started to prepare its Strategy to Combat Climate Change, the main purpose of which is to gradually decrease those CO<sub>2</sub> emissions caused by our activity through the following **areas of action**:

1 Energy efficiency	2 Energy supplied from renewable sources
3 Reduced emissions from fuel	4 Reduced emissions from third parties

Using baseline data, we are specifying emissions reduction targets and a wide range of measures to ensure they are achieved.

Another aspect of note in 2017 was Aena management's completion of the Carbon Disclosure Project (CDP) questionnaire, which received a score of Management B.





# Energy as a key resource for Aena

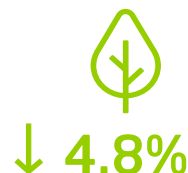
Given the clear improvement in tourist sector data, which in 2017 saw an 8.2% increase in passengers who traveled by air with respect to the previous year, we are faced with an important challenge in terms of managing those resources whose consumption has an impact on the environment.

And so, in the fight against climate change, a key factor is an analysis of our energy use so that we can set improvement goals and take actions intended to reduce these impacts.

However, saving energy through these measures depends on many factors, some of which are beyond the direct control of Aena. One of these factors is the increase in passengers experienced in 2017 (almost 19 million more than in the previous year), which has resulted in the consumption of electricity per traffic unit (ATU) at our facilities staying almost constant despite the reduction initiatives implemented.

## Energy consumption kWh/ATU

(fuels, electricity, heating and cooling)



Reduction in energy consumption  
/ATU in 2016-2017.

In terms of the surface area involved, the consumption **indicator expressed in kWh/m<sub>2</sub> shows an aggregate drop of -12.6% since 2009** (when the significant work to expand some of our airports began). This is spurring us on to continue making every effort and to remain committed to the measures implemented.

## Energy efficiency

The measures taken in our airports to optimize the use of resources and improve energy efficiency are wide ranging, and include measures of a technological nature in lighting and climate control, adapting energy consumption to the actual operations at the airport, improving the monitoring of electricity and fossil fuel consumption and working to raise the awareness of the people who work at Aena. Also in 2017 we conducted energy audits of the buildings and facilities at twelve airports belonging to the Aena network.

These audits covered more than 85% of the total final energy consumption at all of the facilities located in Spain that form part of the activities managed by Aena.

## Renewable energies

Aviation in general, and airports in particular, need a lot of energy. At Aena, we realize the importance of reducing the industry's reliance on fossil fuels, which is why we are working to explore new alternatives to reduce greenhouse gas emissions.

Aware of the potential of renewable energies, we promoted several wide-ranging projects in 2017 that, along with installations already in place, allowed us to optimize our energy consumption and avoided the emission of tons of CO<sub>2</sub>.

## Investing in renewable energies is investing in a more sustainable future



1 Management

2 Energy and climate change

3 Managing noise pollution

4 Environmental protection

5 Outreach

There is a high potential to implement renewable energies at Aena's airports. Our goal is to supply 10% of our own energy needs from renewables by 2030. As for 2017, 10,235 gigajoules of energy was generated from renewables to supply our airports, most of it from wind (78.8%), but also from photovoltaic and solar thermal sources and, to a smaller extent at the Reus Airport, a geothermal installation.

Of note in this regard is the La Palma Airport, a pioneer in the airport sector in the use of wind energy as the primary source. These are the renewable energy sources currently in use at Aena's airports:



Wind turbines at La Palma Airport.



Photovoltaic modules at the airports of Menorca, Ibiza, Alicante-Elche, AS Madrid-Barajas, Madrid Cuatro-Vientos, La Palma, Valencia and Vigo.



Solar thermal collectors at the Barcelona-El Prat Airport.



Geothermal energy plant in Reus.



942 tn of CO<sub>2</sub>

Atmospheric emissions avoided in 2017 thanks to renewable energy installations and to the cogeneration installation at the Bilbao Airport.



Reus Airport (REU)

Flight  
AC658

Gate  
A14



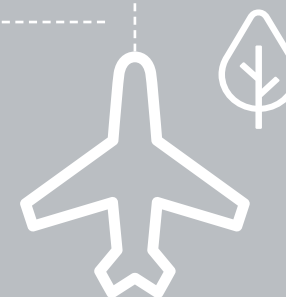
## Geothermal 2017

The Reus Airport has an innovative geothermal system that supplies clean and renewable energy to the airport's fire station. This system uses the thermal energy in the ground to supply the HVAC system in the facilities, yielding significant savings in electricity consumption, and thus in CO<sub>2</sub> emissions.



Reus

In 2017, the Reus Airport also launched a project that combines geothermal and aerothermal systems to supply electricity to the airport's powerplant building, thus yielding significant savings in electricity consumption.



Flight  
AC658







## Reduced emissions from fuel

Aena currently has a fleet of 22 electric vehicles, distributed as follows:



We have set an ambitious target in this area to have 100% of the cars in Aena's fleet powered by non-polluting sources by 2025.

Another method for reducing fuel consumption is focused on efficiency initiatives in HVAC installations.

We were also selected by Spain's Ministry of Agriculture, Food and the Environment for the "2015 Carbon Fund Climate Projects for a Sustainable Economy" for the project to install and supply thermal energy to terminals T1, T2 and T3 from the residual heat produced by the cogeneration plant installed at the Madrid-Barajas Airport.

Thanks to this project, we expect to lower our fuel consumption and avoid releasing to the atmosphere some 4,485 tons of CO<sub>2</sub> a year, enough to supply the annual energy needs of over 400 homes.



## R&D: Biofuels in aviation

The use of biofuels as a source of alternative energy provides a clean and sustainable option for airplanes. As part of the activities taken to minimize CO<sub>2</sub> emissions from aircraft, and in keeping with the EU goal to have 3.5% of all airlines consume biofuel by 2020, we at Aena believe that one of the best options is to use alternative, more sustainable fuels.

Based on this premise, and thanks to a partnership agreement between Aena, Iberia and AlgaEnergy, the Madrid-Barajas Airport has among its facilities an Experimental Technology Platform managed by AlgaEnergy whose main objective is to obtain biofuel from micro-algae.

The research at this center aims to improve technologies to sequester CO<sub>2</sub> through cultivated micro-algae to produce biomass that can be used to produce biofuel.

This plant thus provides a valuable R&D tool that is yielding significant advances in the study of the efficiency and profitability of these biofuels in aviation.

## Reduction in third-party emissions

### Plan to install charging stations at the airports

In 2017, the airports of Madrid-Barajas and Palma de Mallorca offered charging points for electric or plug-in hybrid vehicles, which has been expanded to Barcelona in 2018. We are currently working on a plan to install these charging points such that by 2021, we expect to have one such point for every 40 parking spaces at every airport in our network.

### A-CDM

The concept of A-CDM or CDM (Airport Collaborative Decision Making or Collaborative Decision Making) is intended to improve the overall efficiency of airport operations through the shared use of operational information that is updated in real time among all of the agents implied (airline operators, air traffic control, handling agents and airport managers).

This procedure allows for optimized flight planning and improved air traffic management by sharing updated and accurate information. At the same time, it also lowers the cost of ground movements by minimizing fuel use in aircraft. This is done by reducing the time spent taxiing and waiting at runways, which translates into a considerable improvement for the environment, particularly as it relates to reduced emissions.

But the positive impact of this project is not only felt in the environment; passengers benefit greatly too thanks to reduced wait times, which minimizes delays at the main airports where this system is implemented these being the airports of Adolfo Suárez Madrid-Barajas,



Barcelona-El Prat and Palma de Mallorca. With this system, Aena is helping to boost airport capacity and optimize the conduct of its activity. The project is integrated within the SESAR (Single European Sky ATM Research) program, designed to improve air traffic management within the framework of the Single European Sky (SES).

The Alicante-Elche Airport has a similar system called "Advanced tower" that, in 2017, was expanded to the airports of Gran Canaria and Málaga-Costa del Sol.

### Plan to replace handling vehicles

As part of the actions intended to involve third parties in the challenge of minimizing emissions associated with airport activities, we at Aena have incorporated requirements to phase out emissions from GSE (ground handling equipment) in the specifications for the contracts awarded for handling activities. Handling agents have drafted a plan to reduce their emissions 20 to 30% by 2020, and a common methodology has been implemented to calculate vehicle emissions.



### Plan to implement permanent 400Hz power supplies for aircraft

If you have just boarded your airplane and you are waiting for it to taxi out, you will notice a brief blackout. That is the APU (auxiliary power unit) connecting. This transition causes a short outage as the lights are switched over from the APU to the recently started engines.

The APU is a system whose main purpose is to supply additional energy, if needed, but not to propel the airplane. By supplying this energy, the APU allows the main engines to be started and it also provides electricity and air conditioning with the engines off. It can also supply electricity during a flight.

The main problem is that the APU consumes fossil fuels, generates noise on the apron and emits atmospheric pollutants, affecting both handling personnel and the environment.

As a result, we are replacing this method of supplying electricity by installing permanent systems on jetways to supply 400Hz electricity. We are planning to **install 290 connections in our network of airports through 2030.**

## Intermodality

The accessibility to an airport in relationship to its location plays a key role in reducing greenhouse gas emissions. The number of people and trips has a direct influence on the emissions generated. That is why having a well-connected, efficient and sustainable transportation system is such a challenge for our company.

As part of the strategies to encourage intermodality, we are working in partnership with other agencies and institutions to integrate our infrastructures with those of other transportation providers, improving access roads, rail links and urban planning in airport environments.

### Encouraging public transportation and carpooling

Between 2010 and 2017, we recorded, based on the various methods used to access our airports, a drop in the number of private cars, which went from 30.5% in 2010 to 27.9% in 2017. However, the number of people using rental cars went up sharply in 2017, reaching 13.3%.

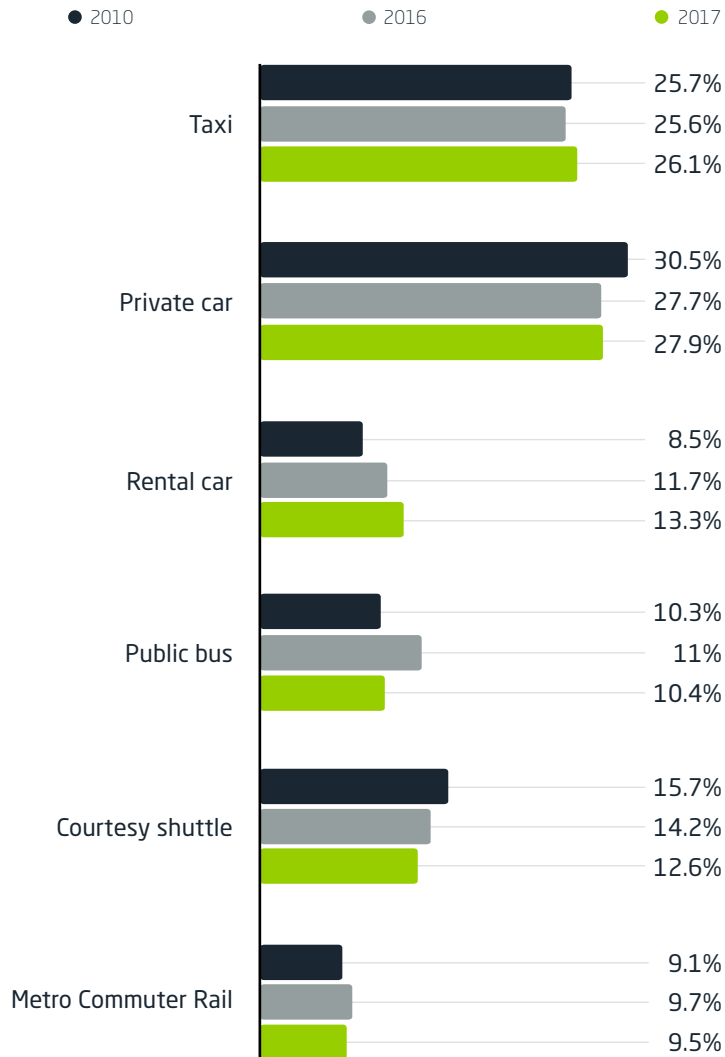
The use of public transportation has also shown improving trends since 2010, with public bus being the most used, followed by metro and train.

Because of this, we are working on Mobility Plans to integrate the access and transportation infrastructures of cities (parking areas, bus and taxi stops) with those of the airports themselves. To plan this, we conduct periodic air mobility surveys to determine passenger profiles, modes of access and points of origin.



### Modes of transport used to access the main airports in the Spanish network

(% of departing passengers arriving by land)



Gate  
B37



# 2017

## Public transport

Encouraging the use of public transportation to access the airport of Barcelona-El Prat:

**1. BARCELONA COMMUTER RAIL:** conexión commuter rail connection planned with terminal T1 at Barcelona. This will allow for a fast connection between terminals with commuter rail and will also make it possible to go directly to the new terminal, which before was only accessible by metro line L-9. Currently under construction.



**2. WORKING GROUP WITH AMB (AREA METROPOLITANA DE BARCELONA)** and creation of a mobility task force in order to determine the strategies and actions needed to improve accessibility to and transportation at the airport. The actions proposed by this working group include the **Action Plan to encourage sustainable mobility** among our employees and airport users based on various initiatives, such as:

- Improving the public transportation network at the Barcelona-El Prat Airport.

Flight:  
BF556

# Barcelona



- Informing users about the public transportation available, and making them aware of the importance of changing their travel habits, opting for public transportation versus using a private vehicle.

- Encouraging carpooling among employees and raising awareness on the importance of efficient driving.



- Promoting the use of bicycles among airport employees and users as a means of urban transportation, by enabling bicycle lanes on which they can ride responsibly and providing safe bicycle parking areas in our facilities.

- **Connection of bike lane** at the Barcelona-El Prat Airport that joins the two terminals with the municipality of Prat de Llobregat.

- **Installation of bicibox**, a network of covered parking spaces for private bicycles, installed by AMB and free to use, at each of the terminals.





# Additional figures

## Internal energy consumption (GJ) and itemized total consumption

		2015	2016	2017
Fuel consumption (GJ)	Diesel	138,679	142,694	146,788
	Gasoline	1,831	1,588	1,973
	Natural gas	112,690	132,251	143,848
	Propane	775	872	840
	Kerosene	1,398	1,439	2,049
Subtotal		255,374	278,844	295,499
Energy consumption (GJ)	Electricity	3,293,640	3,333,600	3,395,244
	Heating	230,490	231,134	210,011
	Cooling	415,846	383,585	424,679
Subtotal		3,939,976	3,948,319	4,029,934
Total energy consumption (GJ)		4,195,350	4,227,163	4,325,433

## Electricity consumption at airports per unit of surface area

Year	Ratio kWh/m <sup>2</sup>	Percentage change from previous year	Cumulative percentage since 2009
2009	254	-	-
2010	242	-5.00%	-5.00%
2011	234	-3.00%	-8.00%
2012	228	-2.00%	-10.00%
2013	222	-3.00%	-13.00%
2014	210	-5.00%	-18.00%
2015	212	1.00%	-17.00%
2016	218	2.83%	-14.17%
2017	222	1.83%	-12.60%

Energy intensity	2015	2016	2017
EI (kWh/ATU*)	2.88	2.65	2.53

ATU = Passengers + 100 \* Operations + 10 \* tons of cargo. \*Includes fuel, electricity, heating and cooling.



## Renewable energy at Aena facilities

		2015	2016	2017
<b>Generated from renewable sources (GJ)</b>	<b>Wind</b>	9,001	9,579	8,071
	<b>Photovoltaic</b>	1,487	1,379	1,600
	<b>Solar thermal</b>	1,289	286	424
	<b>Geothermal</b>	0	95	140
	<b>Subtotal</b>	<b>11,777</b>	<b>11,340</b>	<b>10,235</b>
<b>Consumed from renewable sources (GJ)</b>	<b>Wind</b>	7,372	8,319	7,497
	<b>Photovoltaic</b>	1,383	1,277	1,479
	<b>Solar thermal</b>	1,289	286	424
	<b>Geothermal</b>	0	95	140
	<b>Subtotal</b>	<b>10,044</b>	<b>9,978</b>	<b>9,540</b>
<b>Sold from renewable sources (GJ)</b>	<b>Wind</b>	1,629	1,261	574
	<b>Photovoltaic</b>	104	102	121
	<b>Solar thermal</b>	0	0	0
	<b>Geothermal</b>	0	0	0
	<b>Subtotal</b>	<b>1,732</b>	<b>1,362</b>	<b>695</b>





	2015		2016		2017	
Installation*	kWh generated	tCO <sub>2</sub> eq avoided	kWh generated	tCO <sub>2</sub> eq avoided	kWh generated	tCO <sub>2</sub> eq avoided
Wind turbines at the La Palma Airport	2,500,156	665	2,660,905	569.43	2,241,916	578
Cogeneration plant at the Bilbao Airport	425,916	113	485,464	103.89	806,932	208
Photovoltaic modules at Aeropuerto de Menorca	79,254	21	54,824	11.73	69,983	18
Photovoltaic modules at the Ibiza Airport	50,391	13	31,985	6.84	53,574	14
Photovoltaic modules at the Alicante-Elche Airport	55,605	15	54,279	11.62	53,006	14
Photovoltaic modules at the Madrid-Barajas Airport	90,176	24	113,000	24.18	96,670	25
Photovoltaic modules at Madrid-Cuatro Vientos					20,000	5
Photovoltaic modules at the La Palma Airport	76,889	20	96,489	20.65	65,373	17
Photovoltaic modules at the Valencia Airport	35,100	9	15,473	3.31	29,285	8
Photovoltaic modules at the Vigo Airport	25,691	7	17,015	3.64	56,546	15
Solar thermal collectors at the Barcelona-El Prat Airport	358,040	95	79,450	17.00	117,700	30
Geothermal plant in Reus at the Reus Airport		0	26,500	5.67	38,914	10
<b>TOTAL</b>	<b>3,697,218</b>	<b>983</b>	<b>3,635,384</b>	<b>778</b>	<b>3,649,899</b>	<b>942</b>

\*The CO<sub>2</sub> is calculated based on the relationship between the electricity generated by the installations shown and the CO<sub>2</sub> emission factor considered | Source for emission factor: REE.



# 3

## Managing noise pollution

---

The big day is here. The hustle and bustle of the airport, the bus that drops us off, airplanes coming and going... the typical noises one expects and that rattle our nerves as we reach the airport. We leave our working attire behind and don our explorer's outfits. Before is us a plethora of routes and experiences to discover. We take off and the butterflies in our stomach tell us an adventure we'll never forget is starting. We'll try to make sure that the only mark we leave behind on our travels is our footsteps.

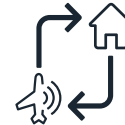




We are concerned about the well-being of our environment and are working to improve it and do right by our stakeholders. One of the great challenges in the airport industry without a doubt is managing noise pollution, and at Aena, we realize how this noise impacts the areas in and around our facilities. To minimize this impact, we carry out numerous activities focused on:



Minimizing noise by making air operations and the development of airport infrastructures compatible with respecting local environments.



Prioritizing active and two-way communications, with special attention to communities located near airports that are more sensitive to noise.

## Measure to know

To achieve our objectives, we rely on various tools to measure the noise generated around airports, most notably:

### Strategic noise maps

In order to accurately diagnose and track overall noise exposure, at Aena we prepare Strategic Noise Maps (SNM) for airports with over 50,000 annual operations. These maps make it easier to design plans of action intended to minimize the effects of noise. These maps are designed in order to **evaluate overall noise exposure** in a given area.

By regulation, the SNM and their associated action plans are reviewed every five years and are comparable throughout the EU. In 2017, SMN were prepared for 11 airports.

The table below shows the trend in the population exposed to noise during this period.

### Defining acoustic easements

Rights of way are the main tool for measuring and managing the impact of noise in areas near airports. Their main objective is to ascertain the impact that noise has in a location so as to make airport operations compatible with ground uses, activities and current and future structures in the area.

We currently have acoustic right-of-way areas in the vicinity of the Adolfo Suárez Madrid-Barajas, Barcelona-El Prat and Palma de Mallorca airports.

### Plans of action

Setting up acoustic rights of way and preparing the SNM requires adopting a plan of action that contains measures intended to make the operation and development of the infrastructure compatible with the activities consolidated in the area.

This plan of action contains both the measures to use to prevent and reduce noise, and a control and tracking program that allows constantly evaluating noise trends in the vicinity of the airport.

People exposed to noise SNM Phase III	INDICATOR	Gran Canaria	Lanzarote	Tenerife South	Tenerife North	Alicante Elche	Barcelona El Prat	Ibiza	AS Madrid Barajas	Málaga Costa del Sol	Palma de Mallorca	Valencia	TOTAL
	Lday 65 dB(A)	282	304	20	252	86	13	14	1,751	319	177	1	3,219
	Levening 65 dB(A)	0	294	0	13	62	14	14	1,497	255	187	1	2,337
	Lnight 65 dB(A)	308	0	90	0	201	13	591	1,754	1,520	516	91	5,084



## Act to reduce

At Aena, we are working to implement measures that reduce noise pollution in the vicinity of airports. However, there are measures beyond our direct scope that we work on along with other stakeholders in order to achieve the maximum reduction possible:

- Noise reduction at the source: Promote the adoption of increasingly stringent requirements in international forums for the noise certification of aircraft.
  - Design and optimization of flight paths
  - Noise abatement procedures during landing
  - Limits on the use of thrust reversers
  - Continuous descent approaches (CDA)
  - Ground noise abatement operating procedures (engine tests)
- Direct noise reduction measures:
  - Use of preferential configurations
  - Threshold displacement
- Introduction of restrictions for specific aircraft (AMC)
- Noise-fee system
- Enhanced air traffic control

## Control and surveillance

### Noise monitoring systems

In order to track the flight paths and noise levels in and around an airport, we have a noise monitoring system (NMS) whose purpose is to obtain reliable and constant information on the level of compliance of the operational procedures that are carried out at the airport, as well as to have data on the noise generated by the aircraft that fly over the various noise monitoring terminals (microphones) installed in and around the airport.





# Dissemination and transparency

## Interactive noise maps (WebTrak)

As a communications and transparency measure with our stakeholders, the information obtained from the NMS is made available in an app located on the [Aena website](#) that can be used to check information on aviation operations (with near real-time information on the flight paths of airplanes taking off or landing) and on the sound levels they generate.

WebTrak is currently available for six airports, which we plan to extend to additional airports soon.



# Soundproofing to minimize noise

## Noise Insulation Scheme

In order to minimize the nuisance caused by aircraft operations, we soundproof buildings located in the vicinity of airports.

We carry out Noise Insulation Schemes in the vicinity of the airports in our network as determined by the environmental impact statements formulated by the Ministry of the Environment and/ or by the acoustic rights of way approved by the Ministry of Development. The goal of these actions is for the acoustic quality goals specified in our laws to be satisfied in those buildings that are soundproofed.

For a building to be included in these schemes, it must be used for residential, healthcare, educational or cultural purposes; it must be inside the noise contour that defines the plan's area of action; and it must have a work permit dated before the publication of the environmental resolution or the approval of the right of way, as applicable. If the noise contour is revised, the applicable date would be its approval date.

Before any action is taken, a laboratory specializing in acoustics takes readings inside the building to determine the soundproofing requirements, which will depend on the noise level to which a building is exposed and its construction materials.

The solutions currently in use include replacing the existing enclosures with higher quality ones, installing dual frames and, if necessary, both solutions at the same time. All actions taken are coordinated and carried out with the approval of the building owner. When necessary, work is also done on the building walls and/or roof.

Once these actions are taken, measurements can be taken to verify the improved acoustic characteristics. This is particularly done in those buildings that are subject to higher noise pressure or that posed particular problems during the noise insulation work.



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**In 2017, a total of 1,825 dwellings were soundproofed. This work was paid for entirely by Aena.**

In 2017 Aena also determined the noise contour that define the areas of action for the Noise Insulation Scheme of the airports of Valencia and Palma de Mallorca.

Also in 2017, Aena agreed on the future actions to take to improve acoustic conditions in educational centers located in the vicinity of the airports in its network.

We intend to continue investing in these types of measures to minimize the acoustic impact of the air transportation activity and to improve the acoustic quality in the residential areas located around airports, the goal being, as stated earlier, to make airport operations and development compatible with the local communities where the airports are located.



#### Period 2000 - 2017:



**23,096**

Soundproofed homes and sensitive-use buildings.



**316.9**

Millions euros invested.



**18**

Noise insulation schemes currently in progress.

## FAQs

### **I want to know if my home is included in the Noise Insulation Scheme. What are the requirements?**

In order for a building to be included in the Noise Insulation Scheme and therefore be eligible for soundproofing, the following requirements apply:

- 1.** It must be located inside the noise contour associated with the corresponding airport.
- 2.** It must have a building permit that predates the environmental impact statement or the date of approval of the applicable acoustic right of way.
- 3.** The building must be designated for residential or sensitive (educational healthcare or cultural) uses, which require special protection against noise pollution.
- 4.** After sound readings are taken inside the structure, it is deemed necessary to install soundproofing in order to satisfy the acoustic quality targets contained in Table B of Annex II of RD 1367/2007 of 19 October.

### **Where can I find out if my home is included in the noise contour of the Noise Insulation Scheme?**

Aena makes available to residents the technical and human resources of our Noise Insulation Scheme Management Office, which will answer any of their questions. You can call this office at the following number, 915 903 170, and our office will let you know if you are included in the Scheme. If you are, you must provide information on the exact location of the home and, if you have it, the land registry data for the building.

For more information, please see the following link:  
**Aena - FAQs**



# Dialog and participation

In 2017, we continued to encourage interaction with government agencies and associations.

The execution and tracking of actions intended to minimize acoustic impacts is being carried out in concert with those agencies involved in airport activities, and in particular with city governments and other local agencies, members of relevant Environmental Commissions and Working Groups.

**From the perspective of Aena's relationship with its stakeholders, of note are the following:**

- Meetings of **Environmental Monitoring Commissions** and **Mixed Commissions**, which allow us to continue to engage with government agencies and stakeholders and extend the benefits derived from implementing noise reduction measures to new airport environments. 24 of these meetings were held in 2017, primarily on the subject of monitoring the noise insulation schemes.

- The actions taken by both the **Noise Technical Working Group** and the **Environmental Coordination Commission** at the Barcelona-El Prat Airport to gather and analyze proposed measures from municipalities and neighborhood associations to minimize noise, which resulted in 8 meetings in 2017.
- Additionally, highlight the celebration of meetings with local councils and neighborhood associations held at various airports, such as Adolfo Suarez Madrid-Barajas and Palma of Mallorca.



## MEETINGS WITH INSTITUTIONS

**Environmental Monitoring Commissions and Mixed Commissions**

**Participants:** Ministries of Development and the Environment, regional and city governments and Aena



## WITH NEIGHBORHOOD ASSOCIATIONS

**Environmental Coordination Commission**

**Participants:** ENAIRE, neighborhood associations and Aena



## TECHNICAL MEETINGS

**Noise Technical Working Group**

**Participants:** Ministries of Development and the Environment, regional and city governments, ENAIRE and Aena





### Improving expectations. Goals for 2020:

Soundproof 25,000 homes and sensitive use buildings included in the Noise Insulation Schemes by the end of 2020.



Improve noise control and management by implementing noise monitoring systems and interactive noise maps at all airports with more than 50,000 operations.



Enhance coordination and monitor of the execution of the measures included in the Acoustic Easements Action Plans (including noise insulation activities) and the Strategic Noise Maps.



### Airplanes land and take off into the wind

Although it may not seem like it, wind direction is crucial for airplanes when landing and taking off. Airplanes always need to land and take off into the wind. That is why you may have noticed that you took off in the opposite direction on a previous occasion, since this decision is made based on the wind direction.

Both when taking off and landing, a tailwind would require a higher airplane speed, which would make the landing or takeoff maneuver much harder to control and require more space to carry out.

This, along with safety reasons, is why **landing and takeoff operations must be made into the wind**. In addition, there are limits beyond which operations with a tailwind or crosswind are prohibited. This is why **runway configurations** change, depending on the wind direction that is present at any given time.

These changes in wind direction, and therefore in the operational configuration, alter the **acoustic impact** on the surrounding area. As a result, it is important to know what the wind is doing in order to determine what effects the noise can have on the airport environment, which will vary based on where aircraft are landing or taking off.

This is why the Webtrak application for the airports of AS Madrid-Barajas and Barcelona-El Prat not only offers transparent information on the sound levels that are

generated by aviation operations, but it also includes features that let users know the wind speed and direction based on data provided by Spain's national weather agency. This tool is represented in the application by a weathervane, which shows the direction of the wind, with its color indicating the wind speed.



# 4

## Environmental protection

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We've reached our destination. We are now officially travelers. Landscapes, photos, dream locations. We start to become part of a new place, a composition that we must leave intact for future generations.

Every journey involves a series of new feelings and sensations. Being open-minded and respectful of the environment and the customs of its inhabitants are the basis for being 'sustainable travelers', which is without a doubt the best way to integrate and experience the journey as realistically and respectfully as possible.





# Water

**The nearly constant water shortages in many parts of the territories where our airports are located make us realize how important it is to preserve this resource, both from an environmental and socio-economic perspective.**

To ensure that sufficient water is supplied to our employees, passengers and all the users who pass through our airport facilities on a daily basis, we need to track this consumption carefully, which is mainly used for human consumption, irrigation, cleaning, firefighting service and construction work.

In this regard, and despite the significant increase in passenger traffic at our airports in 2017, there was a considerable drop in the volume of well-water consumed.

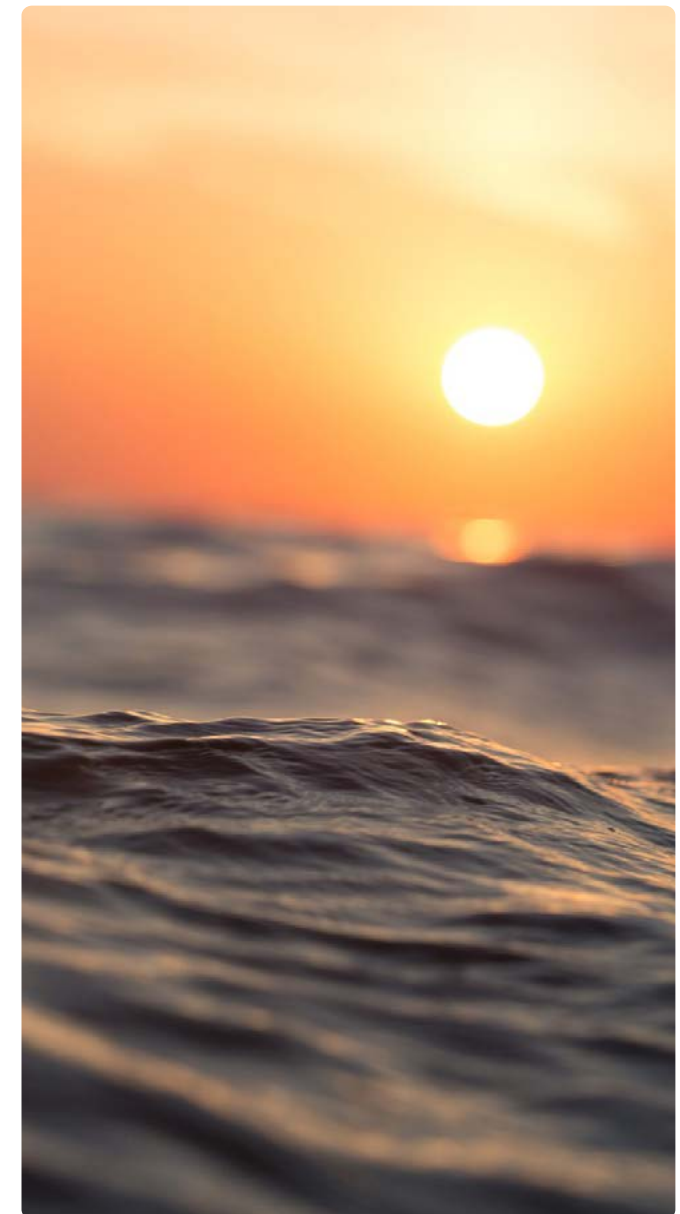
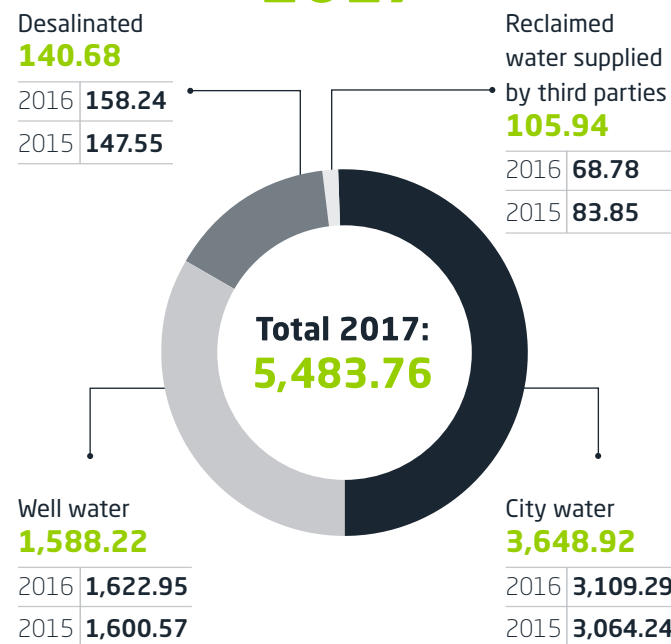


**6% of the water**  
consumed by Aena is reused for  
other purposes.

All of this has driven us to start work on a strategic plan to manage water at airports that allows us to diagnose and take specific actions. Our airports are also implementing innovative ideas, like systems that detect leaks automatically and maintain and monitor networks, and improved water consumption tracking systems that allow us to streamline this usage.

## Overall water use by source (thousands of m<sup>3</sup>)

# 2017





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In order to raise awareness on the use of this valuable resource, airports have installed targeted signs in an effort to ensure that bathroom users, be they passengers or our own employees, are informed about responsible water consumption.



**Ayúdanos a realizar  
un consumo responsable  
del agua**



**Help us to practice responsible  
water consumption**

**¡Usa solo la que  
necesites!**

**Use only what you need!**

aena responsable



### **Best practices in water management**

One of the practices employed at various airports located in areas where this resource is scarce, such as islands, is to reuse wastewater after it undergoes a rigorous purification process, the output of which is sufficient to irrigate landscaped areas and avoid additional consumption of tap water.

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**318,841m<sup>3</sup>**

of water reclaimed  
in 8 airports.

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**105,940m<sup>3</sup>**

of treated water supplied  
from outside and used in  
2 airports.

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**424,781m<sup>3</sup>**

of water saved in total.



# Monitoring air quality

Thanks to measurement stations located at several of our airports, we can monitor the air quality, which allows us to verify that the various parameters are within the specified ranges.

To this end, we measure the concentration levels of the main substances that are generated as a result of our activity, such as sulfur dioxide (SO<sub>2</sub>), nitrogen oxides (NOx) and particulate matter (PM). This makes it possible to constantly and automatically monitor the air quality within the sphere of influence of several airports.

Aena's air quality measurement stations are located at the following airports: Adolfo Suárez Madrid-Barajas, Barcelona-El Prat, Palma de Mallorca, Alicante-Elche and Málaga-Costa del Sol. Some of Aena's stations are integrated into the air quality monitoring networks of the regional governments.

## What is the AIRE Plan?

The Aire Plan (Phase II), which was approved by the Council of Ministers, is the follow-up to the 2013-2016 Aire Plan, with a timeline of activities spanning from 2017 to 2019 and that will be continued through the national program to monitor atmospheric pollution, which must be prepared within the framework of Directive (EU) 2016/2284.

Its main goal is to promote measures in response to air quality problems in order to ensure that the legally established values are not exceeded. Also as part of this plan, we have set up several areas of activity to which Aena, as an airport company, is fully committed.

These activities include the following:

- Improved assessment of the influence on air quality of the operation of airport facilities.
- Follow-up on the optimized taxi routes taken by aircraft.
- Monitor compliance with requirements pertaining to the use of the least polluting vehicles and machinery in the specifications for handling agent contracts.
- Supply 400Hz electricity to aircraft at airports.



## The air quality index

This is a tool to quickly and easily inform the public about the quality of the air that we breathe, as required by the directives laid out in European and national laws on air quality and the right to access environmental information. It is calculated based on the values recorded at the air quality measurement stations and takes into account the limit values specified by law, primarily Royal Decrees 1073/2002 and 1796/2003, and the harmful effects that certain pollutants have on health.

Madrid-Barajas Adolfo  
Suárez Airport (MAD)

Flight:  
CJ818

Gate  
A14



**Redair**  
Air quality  
monitoring  
network

  
**Madrid**

The air quality monitoring network (REDAIR) at the Madrid-Barajas Airport constantly and automatically monitors the levels of pollutants that come from atmospheric emissions.

**You can check our atmospheric reports here:**  
**Atmospheric reports**

Vuelo:  
CJ818

Boarding pass  
Madrid-Barajas Airport







# Biodiversity

Spain is one of the most biologically diverse countries in the European Union, with over three and a half million hectares of natural spaces with some kind of protection. In light of this, it is easy to understand why some of our airports are located close to one of these spaces.

In fact, 24 of our 46 airports have part of some natural protected space or habitat within their boundaries. These spaces accounts for 14% of the total surface area of all the airports in our network.

Given the large number of airports in the Aena network and their locations, the diversity and types of ecosystems that are found in the network are highly variable. Depending on the characteristics of the area where it is located, each airport may house within its boundaries different habitats that have been preserved and maintained over time.

As concerns the presence of vegetation, wildlife and natural spaces in airport environments that enjoy some kind of protection, we engage in various activities intended to make preserving our natural heritage compatible with airport operations and with the functionality and development of our infrastructures. Many of these activities are contained in the various Environmental Impact Evaluations that were conducted prior to expanding our airports.

To learn more about these activities, please see the following link: **Environmental Resolutions**

Similarly, in the area of operational safety, Aena manages the wildlife so as to allow the protection of this natural heritage to be compatible with the safety and quality standards required for aviation operations. As a result, we engage in periodic wildlife and habitat studies at each airport, the results of which are validated in concert with local and regional environmental agencies, as well as with the National Aviation Safety Agency.

The purpose of these studies is to **identify the habitats** and features that attract wildlife to the area, and **the species** associated with them that, due to their characteristics, can pose a threat when they interact with the airport or with the maneuvers conducted in it. The goal is to evaluate and define those wildlife management measures that, while respecting the fauna and its settings, ensure and improve our safety and quality standards.



## 14%

Of the total surface area of Aena's airports is in protected natural spaces or habitats.



## Falconry as a biological control measure for wildlife

In order to balance out the competition between birds and aircraft for airspace, falconry has been used at Spanish airports for over forty years as one of the measures in place for preventing and minimizing the risks that birds pose to air traffic.

**Falconry, which involves the use of trained birds of prey, is the most effective biological method for avoiding potential incidents with aircraft in and around airports.**

The use of falcons in airport environments was pioneered in 1968 in Torrejón de Ardoz, where the method proposed by naturalist Félix Rodríguez de la Fuente was first applied. After training them for four months, the falcons flew for the first time at the airbase.

Two years later, Madrid-Barajas became the first civil airport to open its runways to falcons, and by the end of 1970, measures were implemented to protect these birds and falconers began falcon breeding programs.



Wildlife control video:



Most common  
bird species at  
airports:



**Saker falcon**  
*(Falco cherrug)*



**Peregrine falcon**  
*(Falco peregrinus)*



**Harris hawk**  
*(Parabuteo unicinctus)*



**Gyrfalcon**  
*(Falco rusticolus)*





## Vegetation control in and around airports

For operational safety reasons, the vegetation surrounding an airport must be controlled. To do this, mowing and trimming of bushes are routine activities in areas around airfields.



Some airports sign agreements with farmers or agricultural companies or associations in the area to set up farming operations on their land. This way, we are creating a synergy that provides a mutual benefit, since on the one hand the airport ensures that areas that are vital to operational safety are cared for and maintained, and on the other, farming activity is created, along with a business opportunity, for local farmers and/or businesses.

The crops to grow are very carefully selected, considering criteria such as ensuring that the plants do not grow to excessive heights, that they cannot be used as shelter for animals and that they do not attract birds.

This formula, in which crops are grown in exchange for maintaining the land, is a best practice that reconciles the airport's activity with preserving the environment and developing the local economy.

Ibiza Airport (IBZ)

Gate  
F16



## Mediterranean vegetation at the Ibiza Airport



The Ibiza Airport has **90,000 m<sup>2</sup> of landscaped areas**, that alternate with prairies, Mediterranean gardens, areas with cacti and crop fields with typical indigenous fruit trees. Some of these areas have remained unchanged for over 50 years and preserve unique ficus and palm tree specimens that live alongside numerous orange, almond, carob and fig trees, as well as silk, hibiscus, calla, iris and rose plants, along with a long list of other trees, shrubs, flower islands and pebbles for everyone who visits or works at the airport to enjoy.

The airport also has **4,000 m<sup>2</sup> of green roofs on its buildings** that, as with all other airport gardens,

Flight:  
C7859

Ibiza

Flight:  
C7859

are irrigated with reclaimed or rain water, thus avoiding the use of potable water to maintain them.

In summary, the green roofs go beyond providing an unquestionable aesthetic improvement; they keep the local atmosphere cool and add moisture to it, creating a more pleasant climate thanks to their natural air filtration effect.



Boarding pass  
Ibiza Airport



C7859



# Waste

In the area of managing the waste generated at airport facilities, we have focused our efforts on promoting value and on the need to separate trash at the point of origin at our facilities to encourage employees, the various concessionaires and the users of our airport to play a more active role.

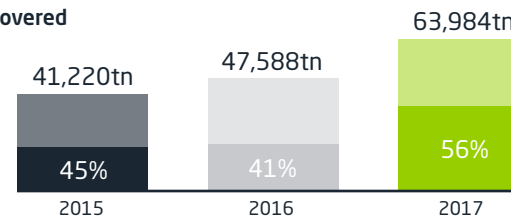
The initiatives carried out include the selective collection of materials for recovery (paper, glass, scrap metal, wood, plastic, etc.) and the reuse of purifier sludge as fertilizer in landscaped areas or to generate compost at several airports.

In terms of performance, the year 2017 saw an increase in the amount of **non-hazardous waste (NHW)** due to improved data collection methods, to the increase in passenger traffic, as mentioned earlier, and primarily to the fact that in 2017, there was a one-time collection of 14,000 tn of rubbish produced by work to clear land at the Barcelona-El Prat Airport, all of which was sent away for recovery.

This increase, however, was offset by the efforts made to separate this waste during the collection process in order to recover it, such that the processes involved in handling our NHW yielded a 56% recovery rate for this type of waste.

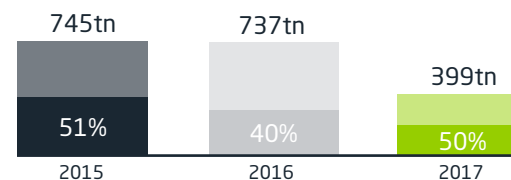


Tn of NHW collected and percent recovered



As for the management of **hazardous waste (HW)**, there was a significant drop with respect to the previous year, going from 738 tons removed in 2016 to 399 tons in 2017.

Tn of HW collected and percent recovered



**50% of the hazardous waste generated and 56% of the non-hazardous waste is recovered, meaning it is reused as a raw material or energy instead of being discarded.**

## Partnership agreements

Lastly, we enter into specific partnership agreements with companies like Ecoembes, Ecovidrio and ERP in order to maintain a selective collection system that ensures that every waste type is properly handled. We also work with the Trinitjove Foundation to collect and separate recoverable waste at the Barcelona-El Prat Airport

## How pneumatic collection works

This system relies on an automatic suction process that is used to transport the municipal waste produced in the airport facilities to the core of the system, located in the transfer plant. Airports like the one in Alicante-Elche have a waste transfer plant, where the traditional and pneumatic waste collection systems meet, and where the waste is stored using pollution prevention measures based on the nature of each, until the waste is removed to authorized processing points.

The pneumatic collection system, which uses tubes over one kilometer in length, automatically transfers the waste similar to household waste that is produced in the terminal, and waste separated at the point of origin into light packaging, paper and mixed (organic and the rest), to the transfer plant. Once at the plant, material or energy instead of being discarded. the waste is deposited and compacted in separate containers.

The air used in this process passes through filters to clean it before it is returned to the atmosphere so as to scrub out any odors it may pick up during the process.



In addition, at the system's central station there is a 30kW photovoltaic installation that is part of the airport's electrical system.



### Pneumatic Collection System

In order to properly treat the waste from the terminals and offices, the pneumatic collection system at the Barcelona-El Prat Airport allows collecting waste through fixed boxes located in places that are accessible to users (restaurant and store employees). There are 15 pneumatic reception rooms distributed throughout the different floors of the terminal that collect the paper, organic trash, packaging and NHW dropped off by users.

See the path taken by a bottle from the time it is deposited in a trash can at the airport until it reaches the recycling plant:



### Closing the cycle on organic matter

At the **Bilbao Airport** we have a composting plant that is used to recycle organic waste. Placed into service in 2011, this plant treats the organic matter from the waste generated at the airport right on site by means of a biological process that yields organic compost, or fertilizer. The matter that is composted comes primarily from the airport's restaurants and cafeterias, but also includes landscaping waste from the airport and the sludge from the wastewater treatment plant.

The main advantage of composting is that it provides a way to recover organic waste, thereby reducing urban waste and making the most of the airport's own resources to produce quality organic fertilizer that is used in the landscaped areas of the airport.

Every 100 kilos of organic waste yields 30 kilos of fertilizer. As a result, in the last year, the composting plant at the airport processed 150 tons of materials.

### Agüita con el plástico

The **Lanzarote Airport**, through the Biosphere Reserve Observatory, has been leading the way in recent years with numerous initiatives involving waste reduction, and in particular plastic consumption. One of these best practices is the airport's involvement in the *Agüita con el plástico* campaign, which has been used to clean beaches and natural areas, organize events such as workshops, awareness talks, sessions with schoolchildren and conferences on this environmental impact.

In terms of minimizing this waste, the Lanzarote Airport has also led the way by being the first airport to implement a zero plastic packaging initiative in its VIP lounge.





# 5

## Outreach

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It's comforting to look back and remember each moment, each detail learned from that culture we visited. We have learned other customs and experienced other ways to live, and that makes us more tolerant. Because being able to understand a process or activity outside our normal routine is, without a doubt, an exercise in our own growth and education.





# Learning about the airport and its environmental management

We have been developing various programs involving guided visits for people interested in learning how airports work, mainly students of all ages, retirees, etc.

We use this initiative to encourage knowledge and awareness in future users by offering a behind-the-scenes look at airport operations that combines environmental aspects with the management of the facilities. This allows visitors to understand how important it is for us to respect and care for the environment, and how necessary the measures are that we carry out to protect it.

These activities are enthusiastically received, which motivates us to keep offering this ever-growing initiative year after year.

Moreover, in order to involve our youngest citizens more in protecting the environment, during their educational visits to some airports they are given learning materials on protecting and caring for the environment and how airports operate.





# We would like to know your opinion

By processing questions and complaints from users, we transform them into useful knowledge that drives us to improve. They provide an added value for Aena, and so, in an effort to make it easy for you to engage and communicate effectively with us, we have a **direct online channel** that anyone can use to ask a question quickly and easily through our corporate website.



1,674

Environmental information requests  
processed in 2017.



5,556

Complaints received, 94% of which  
involved noise.

As concerns the percentage of complaints received, 94% involved noise, which explains why we devote so many of our efforts to constantly improving the programs to measure, track and minimize noise in and around airports. Also worth noting is the fact that of all the complaints received, 91% were for the Adolfo Suárez Madrid-Barajas and Barcelona-El Prat airports.

In addition to the online channel mentioned earlier (Environmental Care Office), there are other methods of communication available to users who wish to contact us for any matters of an environmental nature.

In the case of the busiest airports, like Madrid-Barajas and Barcelona-El Prat, these have dedicated offices that specifically handle information requests and complaints related to the environment, such as noise, odors, atmospheric pollution, etc.



**Noise Insulation Scheme Management Office** (only for questions involving soundproofing of homes).

☎ (+34) 915 903 170

**Environmental Care Office**

🏠 **Aena Public Website**

**OFIMA (Environmental Office of Adolfo Suarez Madrid-Barajas Airport)**

☎ (+34) 913 936 710

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# Key figures



Environmental claims and complaints

2015 2016 **2017**

3,280 3,398 **5,556**



Requests for environmental information

2015 2016 **2017**

2,403 788 **1,674**



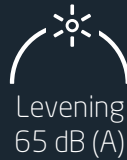
Total water use (thousands of m<sup>3</sup>)

2015 2016 **2017**

4,896.21 4,959.26 **5,483.76**



Number of people exposed to noise in 2017



Phase III SRM

**3,219**

**2,337**

**5,084**



Breakdown of waste (tons)

2015 2016 **2017**

Non-hazardous 41,220 47,588 **63,984**

Hazardous 745 737 **399**



Greenhouse gas emissions

Direct GHG (scope 1 & 2) CO<sub>2</sub>e (t)

2015

2016

**2017**

287,940

349,909

**264,057**



Energy generated from renewable sources (gigajoules)

2015

2016

**2017**

11,777

11,340

**10,235**

