aena

Environmental Sustainability Report

2019

Index

Environmental commitment

We manage sustainable airports so you can be close to what matters to you the most.

We manage sustainable airports so you can be close to what matters to you the most.

Preserving the environment is one of the prime challenges facing society today, and with its increasing awareness society is asking companies and governments to make a stronger commitment to achieving a more sustainable, environmentally respectful development model.

At Aena, we share the concern with preserving our environment, so we work **to make our activity compatible with environmental conservation** and communicate the environmental management we undertake transparently in order to get our stakeholders involved in the advances we have made in 2019.

Scope

This report contains information on Aena's environmental performance in 2019 for the 46 airports and 2 heliports we manage in Spain.

The information reported in this document complements and expands upon the environmental information contained in the 2019 Corporate Responsibility (CR) report published previously. Therefore, the consolidated figures in this **2019 Environmental Sustainability Report** may differ from the figures presented in the CR Report.

We should highlight the fact that this report describes the **tangible aspects of the company in relation to environmental sustainability** as identified in the aforementioned CR Report, in addition to adding information on other aspects which are not tangible yet are part of Aena's environmental management.

Furthermore, to **ensure quality and accuracy,** we used the battery of indicators proposed by the Global Reporting Initiative (GRI) as the frame of reference as we drew up this report.

Finally, we also want to share how our goals and initiatives are **aligned with the United Nations Sustainable Development Goals (SDGs)** and with the ten principles defined by the UN's Global Compact, of which we are partners.

Main figures 2019

Environmental claims and complaints

2017	2018	2019
5,556	3,555	**5,988**

Requests for environmental information

2017	2018	2019
1,674	1,376	**1,089**

Consumption of water (thousands of m³)

2017	2018	2019
5,403.96	5,557.93	**5,520.42**

Number of people exposed to noise in 2019

	Ldia 65 dB (A)	Levening 65 dB (A)	Lnight 55 dB (A)
SNM phase III	**3,219**	**2,337**	**5,083**

Breakdown of generated waste (tons)

	2017	2018	2019
Non-hazardous waste	63,984	69,928	**78,717**
Hazardous waste	400	650	**937**

Greenhouse Gas Emissions

(Scope 1 and 2) (t CO_2eq)

2017	2018	2019
259,136	242,789	**136,430**

Energy generated from renewable sources (Gigajoules)

2017	2018	2019
10,235	10,972	**10,467**

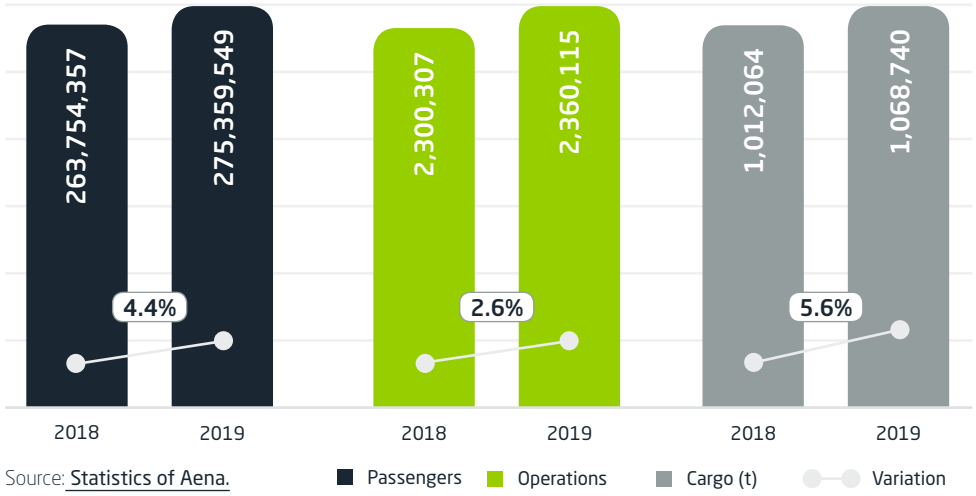
Our management

In 2019, more than 275.2 million passengers went through our facilities, the equivalent of more than half the population of Europe (in an area more than 167 km²).

Our activity focuses on **managing Spanish airports and heliports** of general interest, which we do as a state trading company operating under the name of Aena SME, S.A. We also participate in managing another 17 airports in Europe and the Americas, such as London-Luton, 51% of whose capital we hold.

With a 4.4% increase in the number of passengers compared to 2018, we continue to position ourselves as **one of the leading airport operators in the world in number of passengers.** Airport operations also rose 2.6% and freight handling rose 5.6% in 2019.

Traffic from passengers, operations, cargo and transit



Source: Statistics of Aena.

A strategic sector

Air transport is a strategic sector in the global economy because of both its economic impact and its social contribution in terms of connectivity, accessibility, connection and territorial structuring.

This is particularly salient in Spain, which was the second most visited country in the world in 2019, and 4 out of every 5 foreign tourists used airplanes to reach our country. Generally speaking, there was a clear global increase in air traffic in 2019, which poses a major challenge to the aeronautic sector, in which sustainability is a priority to ensure the evolution of this means of transport in the future.

In this regard, we believe it is essential to continue reinforcing our commitment to sustainability and environmental protection by maintaining high quality and safety levels in our services. Thus, in addition to working to develop new technologies that lower the impact of aeronautical operations, we want to stress that **sustainability is part of our activity at all management levels.** In fact, as this report was being drafted, Aena has become one of the first companies in the world that reports to its shareholders on its decarbonisation strategy every year by presenting its **Climate Action Plan.**

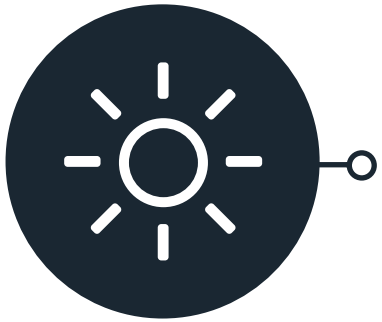
This also enables us **to meet the demands of a society that is increasingly aware of** and calling for environmental protection and conservation. At Aena, we listen to their suggestions and work to improve our performance by incorporating them into our day-to-day activities.

Likewise, we should highlight that the operations conducted in airports are governed by strict environmental regulations on matters like noise pollution, air quality, protection of water resources and waste management. At Aena, we view these guidelines as **opportunities to manage our day-to-day operations more efficiently and better.**

We transform our tangible matters into opportunities to improve our management

Noise management

Noise management is of the utmost importance as it affects the **communities in the vicinity of airports,** so we work to manage and minimise its impact in order to make our activity compatible with these communities.



Energy efficiency, renewable energies and lowering greenhouse gases (GHG)

Acting on these three key factors, we **contribute to the struggle against climate change** while also consuming energy more responsibly.

Environmental complaints

These tell us about the potential negative effects of our activities, which we then analyse, and based on the results, we can **develop strategies to prevent and correct them.**

To gradually make headway and focus all our efforts on specific objectives, we have set **goals in our environmental management** which will enable us to reach these objectives:

- **To improve society's perceived image** and the media channels with our stakeholders.
- **To maximise energy efficiency** of our activity and push for renewable energies, contributing to minimising CO_2 emissions until our facilities are carbon neutal.
- To make airport management compatible with **respect for the environment** wherever they are located.
- To reinforce a model that guarantees **sustainable coexistence with local communities and the environment,** especially on noise matters.
- **To meet society's needs,** going beyond the legal requirements by implementing **innovative solutions.**

Based on the opportunities and challenges detected in environmental management, we have defined a series of **objectives for 2021** that we have outlined in our **2018-2021 Strategic Plan,** one of whose main strategic avenues is environmental sustainability. By applying it, we will achieve the sustainability of air transport, conducting our activity in a way that makes it compatible with the progress of the communities in which we operate.

Environmental milestones achieved in 2019

Noise management

Approval of the acoustic easements and the corresponding Action Plan for Gran Canaria Airport.

Approval of the Strategic Noise Maps (Phase III) in the following airports:
Alicante-Elche ● Adolfo Suárez Madrid-Barajas ● Josep Tarradellas Barcelona-El Prat ● Gran Canaria ● Ibiza ● César Manrique-Lanzarote ● Málaga-Costa del Sol ● Palma de Mallorca ● Tenerife Norte ● Tenerife Sur ● Valencia.

Implementation of the **Noise Monitoring System** in Bilbao, Tenerife Norte-Ciudad de la Laguna and Tenerife Sur Airports.

With regard to Aena's Noise Insulation Plans (NIP), **578 soundproofing actions** were taken in sensitive homes and buildings in 2019, which entailed an investment of €7.4 M. In addition to the number of homes cited in the Corporate Responsibility Strategic Plan, **we have improved the soundproofing in two schools** located in the provinces of Alicante and Valencia.

Struggle against climate change

Presentation of **Aena's Photovoltaic Plan.**

53% reduction in absolute CO_2 emissions (absolute value compared to baseline year 2015: Scope 1 and 2 (Market-based criteria)).

60% of electricity purchased in the Spanish airport network with a **renewable energy certificate.**

Installation of **92 charging stations for electric vehicles**.

"A List" rating in the Climate Change Report of the Carbon Disclosure Project (CDP).

Gradual reduction in CO_2 emissions from "Third-party handling" equipment:

- **30% decrease** in the Madrid airport.
- **20% decrease** in the other airports.

Adhesion to ACI EU Net Zero initiative, which confirms our commitment to reach zero net emissions in all airports within the network by 2040.

Environmental protection

Fostering the circular economy with the goal of promoting a reduction in waste and maximising available resources.

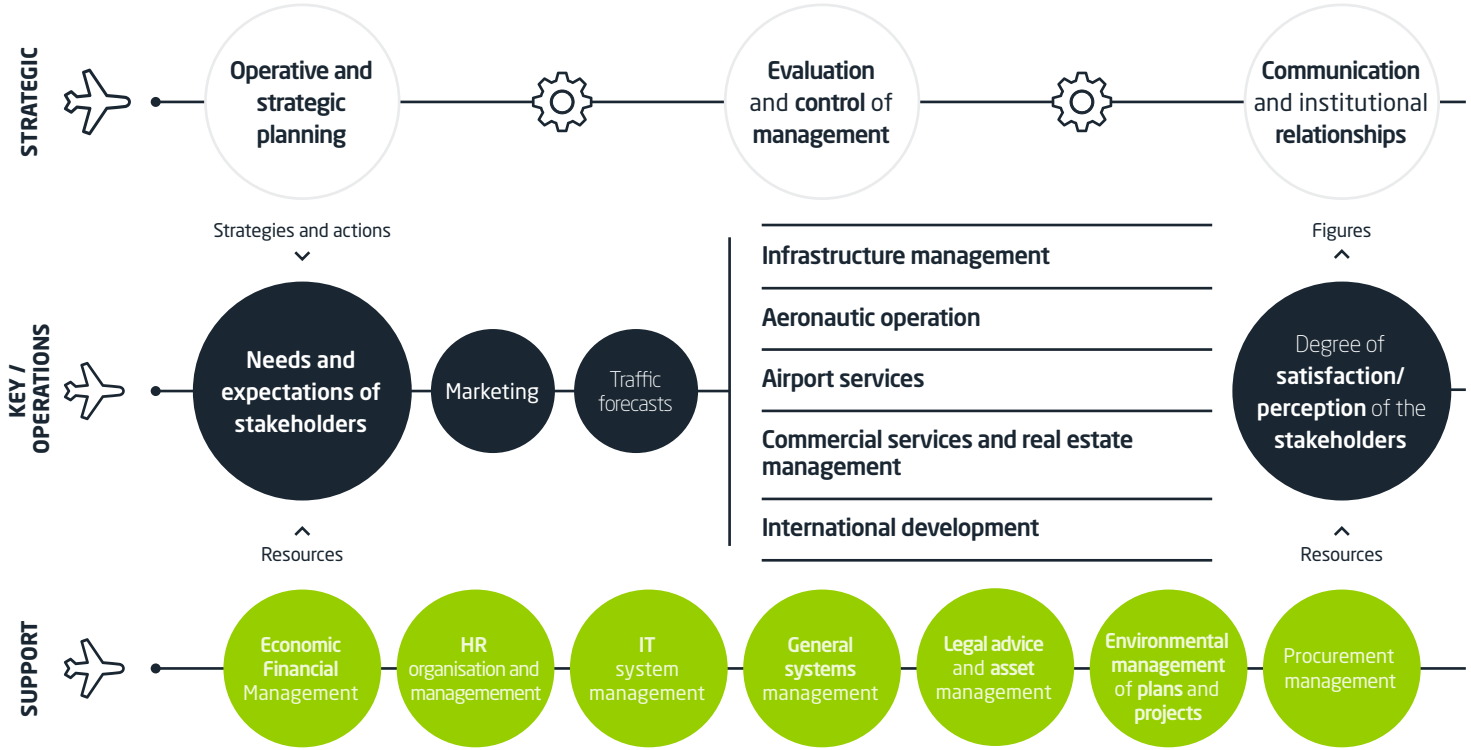
Minimising and controlling water consumption and calculating the water footprint.

Our Management System

In order to achieve everything we have outlined so far, we are working on integrating sustainability into our daily actions, thus aligning ourselves with the development model we are pursuing. Therefore, via our **Quality and Environment Integrated Management System (IMS),** which is certified following the international ISO 9001 and ISO 14001 standards, we are living up to our responsibilities and commitments to guarantee optimal service.

The IMS also enables us to comply with the principles established in our own Integrated Quality, Environment and Energy Efficiency Management Policy.

Interaction of Aena's Integrated Quality and Environment Management System processes



The efficacy of the IMS depends on everyone's commitment and participation. Therefore, we conduct **training and awareness-raising campaigns** that inform and recruit our staff, the companies operating in our facilities and the users. In this way, we share the value that the IMS brings to the environment.

Likewise, we track the companies that work in our airports to oversee their environmental behaviour and transfer our commitment and support to developing initiatives to improve environmental management. In this sense, contracts associated with actions that have a potential impact on the environment are monitored via **periodic environmental checks,** such as facilities visits or assessment of compliance with the Environmental Monitoring Plan, as well as all its related aspects.

We align our business model with the SDGs

The **contribution to the United Nations' Sustainable Development Goals** (SDGs) encompasses the local actions that should be launched to reach these goals, which are set globally. For this reason, we have aligned our business model with the Sustainable Development Agenda by associating the actions that we launch with specific SDGs.

Thus, with our efforts to help make our activity compatible with the environments in which we operate, we are contributing to SDGs 6, 7, 11, 12, 13 and 15, which are primarily related to environmental preservation, the efficient use of resources and the struggle against climate change.

This is our local contribution to achieve a more sustainable future.

Alignment with SDGs

Aena with the SDGs. Working towards Sustainable Development.

AGENDA 2030

Working towards Sustainable Development

Company committed to the United Nations' Sustainable Development Goals (SDGs).

2015 ——— 2030

SDG		Theme	Our contribution
6 CLEAN WATER AND SANITATION	Guarantee the availability of water and its sustainable management and sanitation for everyone.	**Water**	We promote initiatives targeted at **reducing water consumption** at our airports, in addition to **minimizing the generated discharges** to preserve nearby ecosystems.
7 AFFORDABLE AND CLEAN ENERGY	Guarantee to safe, accessible, sustainable and modern energy for everyone.	**Climate change**	We have facilities for the **generation of renewable energies** in self-consumption at our airports, in addition to opting for cleaner alternative energy.
11 SUSTAINABLE CITIES AND COMMUNITIES	Achieve that cities and human settlements are inclusive, safe, resilient and sustainable.	**Climate change and air quality**	We focus our e orts on **minimizing the noise impact** in the environment surrounding our airport facilities, at the same time **maintaining the quality level for optimum air**.
12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Guarantee modes of consumption and sustainable production.	**Material resources**	We work to **reduce the waste** generated in the airport surroundings, evaluating those that could not be prevented and correctly managing the rest. Moreover, we incorporate **environmental criteria in the acquisition of products and services,** and we support actions related to the circular economy.
13 CLIMATE ACTION	Adopt urgent measures to combat climate change and its e effects.	**Climate change**	We work to **reduce GHG emissions** generated in activities carried out at the airport facilities.
15 LIFE ON LAND	Sustainably manage forests, fight against desertification, detain and revert the deterioration of land and detain the loss of biodiversity.	**Biodiversity**	We promote the **conservation of natural spaces** near to the airport facilities.

Certifications and Endorsements

The management carried out by many of our airports has been verified according to various international standards. Achieving these certificates and maintaining them involves undergoing exhaustive audits each year to verify the correct implementation of the system, the procedures established and the development of our actions to achieve the objectives set.

Certifications:

EMAS Regulation. The Eco-Management and Audit Scheme (EMAS) facilitates the evaluation and improves the environmental behaviour of the company and favouring transparency.

ISO 14001: Environmental Management System. Allows the control and minimization of the impact on the environment, which can originate according to our activity.

ISO 50001: Energy Management System. Contributes to the definition of procedures to reduce energy consumption, minimizing the carbon footprint of the company and diminish costs resulting from energy consumption.

14064: Calculation of Carbon Footprint. Permits the verification and validation of the calculation of greenhouse gas emissions of the company.

Airport Carbon Accreditation (ACI Europe). Accredits the calculation of the carbon footprint of our airports and the carrying out of the commitments to the reduction of the acquired CO_2 emissions.

ISO 9001: Quality Management System. Oriented on customer satisfaction and the capacity to provide products and services that comply with the internal and external requirements of the company.

EFQM Model of Excellence and Quality in the Corporate Management Instrument for self-assessment and the determination of continuous improvement process in corporate environments.

Seal in the reduction of the carbon footprint granted by the Ministry of Envi- ronment of Spain (MITECO) to Adolfo Suárez Madrid-Barajas Airport in relation to registering the carbon footprint, o setting and absorption protection of carbon dioxide.

Endorsements:

FTSE4Good. This stock exchange index evaluates the degree of sustainability of the companies and recognizes their good practices in the social, environmental and good governance spheres.

Global Compact. Organization to which we have belonged since 2017, committing us to its ten principles..

#PorElClima. Community established by society, SDG, companies and administrations aware of the urgent necessity to act against climate change, to which we have belonged since 2017, with the commitment to reduce our GHG emissions.

CDP. It recognizes Aena's environmental commitment, by giving an assessment to companies that incorporate climate change as a strategic factor. Aena has achieved the highest rating in 2019, an A, above the average for its sector.

Energy and climate change

We are currently at a decisive juncture for successfully dealing with the greatest environmental challenge of our era: the struggle against climate change.

Aena achieves the top rating from the Carbon Disclosure Project (CDP)

The CDP is an international non-profit organisation which promotes sustainable economies. Its objective is to help disseminate environmental information on the leading companies in order to encourage investment **decisions that incorporate climate change** as a strategic factor.

Through an annual survey of the largest companies in the world, the CDP compiles information on the climate **risks and opportunities associated with low carbon emissions.**

Aena's commitment to sustainability and the struggle against climate change was appreciated and recognised by the Carbon Disclosure Project (CDP) throughout 2019, which gave us a **"Management A" rating,** the highest rating offered by the organisation.This has made us one of the only seven companies in Spain that earned this rating and one of the few European airport companies rated so highly.

CO_2 emissions

We are currently at a decisive juncture for successfully dealing with the greatest environmental challenge of our era: the strunggle against climate change. This is a problem on a global scale which requires active collaboration by government, organisations and society at large to adopt climate change mitigation and adaptation measures.

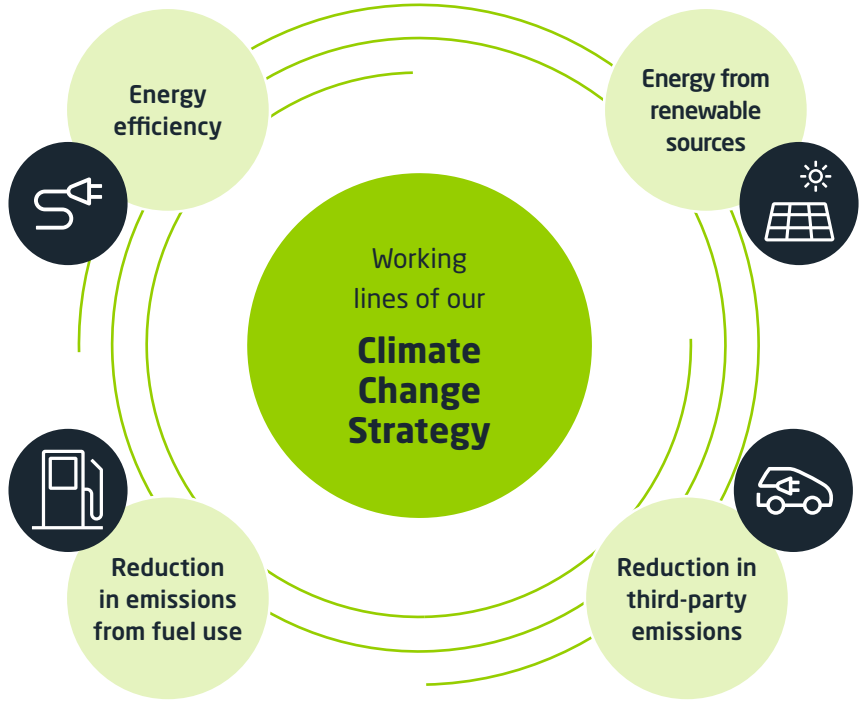
We know that passengers value air transport and its economic, cultural and personal benefits, yet they are also asking **to travel more sustainably.** For this reason, at Aena we are working in conjunction with our stakeholders to achieve the **decarbonisation of the sector** with a clear goal in mind: to achieve sustainable air transport.

In this regard, approximately 2.5% of total global greenhouse gas (GHG) emissions come from the aviation sector. Of these emissions, 95% are generated by aircraft, while the rest can be attributed to direct control of airports, that is, activities conducted in their facilities in which many agents take part in their supply chain.

Our Climate Change Strategy

At Aena, we are working to deal with climate change and mitigate its effects. To do so, we have a **Climate Change** Strategy whose main goal is to gradually decrease the CO_2 emissions stemming from our activities.

This strategy is implemented along four working lines which include a series of **specific emissions reduction goals** and a broad battery of measures that enable us to meet them.



ACI EUROPE NetZero commitment

In 2019, Aena joined the Airport Councils International (ACI) Net Zero initiative by committing to achieving the goal of **zero net carbon emissions** in our airports by 2050, not including offset mechanisms.

After joining it, Aena reaffirmed its **commitment to decarbonisation** by moving the date we plan to reach this goal up to 2040.

This agreement, which has been signed by more than 200 airports in 25 European countries, marks a significant milestone in the actions that the airport sector is taking to struggle against climate change.

Our carbon footprint

At Aena, **we calculate our carbon footprint** every year, which enables us to track the progress we have made on our Climate Change Strategy and identify how effective the measures we have applied are.

Aena's GHG emissions

OWN EMISSIONS

SCOPE 1. Direct emissions from sources or processes and activities controlled by Aena in our facilities. The sources of GHG emissions are:

- **Stationary combustion.** Emissions generated by power-generation units, portable generators, boilers, fire extinguishing practices and auxiliary pumps from water reservoirs to fight fires.
- **Combustion in mobile sources.** Emission from vehicles belonging to the Aena fleet, both light and heavy.

SCOPE 2. Indirect emissions caused by electricity generation or thermal energy acquired and consumed in our airports. Their source is:

- **Electricity consumption.** Emissions associated with the electricity consumption of the activities performed by the airports to heat, cool, light and operate different facilities.

THIRD-PARTY EMISSIONS

SCOPE 3. This encompasses the other indirect emissions primarily from:

- **LTO cicle.** This is the landing and take-off of aircraft owned by airlines operating at our airports.
- **APUs.** Auxiliary power units which supply energy to the aircraft when they are landed.
- Vehicles and machinery that provide **handling** or passenger and aircraft assistance services at the airports.
- Miscellaneous (**energy consumption of licensees, land accesses, employ trips**, etc).

Direct greenhouse gas emissions (Scope 1) and indirect emissions from electricity (Scope 2)*

2019	tCO_2eq
Scope 1	22,569.59
Scope 2	113,860.90
Total scopes 1 & 2	**136,430.49**

Main indirect greenhouse gas emissions by third parties (Scope 3)

2019	tCO_2eq
LTO Cicle**	2,327,788
APUs***	44,834
Handling	30,754
Other emissions****	1,449,836
Total scope 3	**3,853,213**

In 2019, we have managed to lower GHG emissions thanks to the measures applied via our GEI Climate Change Strategy.

43.8%

Reduction in GHG emissions (scopes 1 and 2) compared to **2018.**

53%

Reduction in GHG emissions (scopes 1 and 2) compared to **2015** (baseline year).

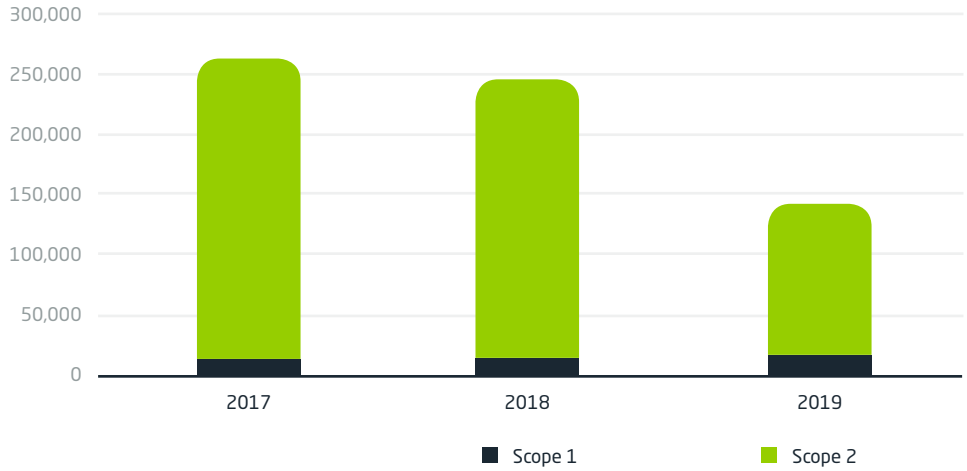
*The figures on the carbon footprint cited in this Environmental Sustainability Report differ from those in the 2019 CR Annual Report and previous figures because they have been updated with the consolidated consumption figures and emission factors from 2019. The market criterion was used to calculate scope 2 emissions.

**LTO cycle (aircraft landing and take-off)

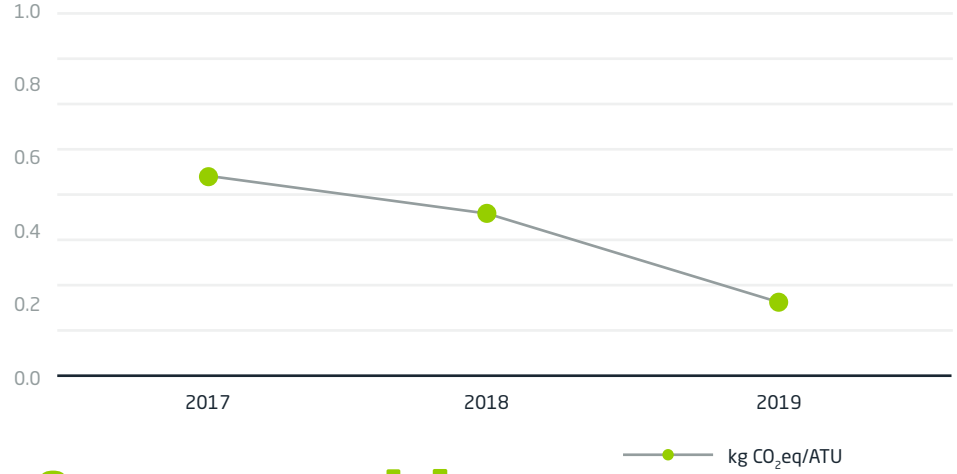
*** APUs (Auxiliary Power Unit)

****This includes emissions from the acquisition of goods and services, capital goods, work trips, employee commutes, assets leased by the organisation and the transport and distribution of water downstream, among others.

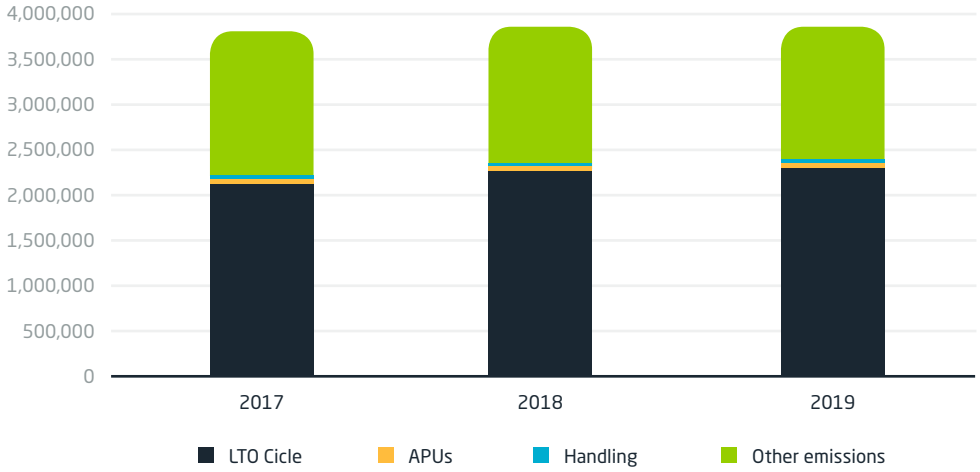
Development of Aena's emissions | Scopes 1 & 2
tCO_2eq



Intensity of Aena's emissions | Scope 1 & 2
Kg CO_2eq/ATU



Development of Aena's emissions | Scope 3
tCO_2eq



Aena and its commitment to lower emissions

Notes:

- The 2019 figures differ from those cited in the 2019 CR Annual Report because the new emission factors in force on the date this report was published were used.
- The LTO figures from 2017 and 2018 have been updated with the official figures from the MITECO inventory of emissions, so they differ slightly from those cited in previous reports.
- Miscellaneous emissions include those stemming from the acquisition of goods and services, capital goods, work trips, employee commutes, assets leased by the organisation and the transport and distribution of water downstream, among others.

Certifications
Airport Carbon Accreditation

The **Airport Carbon Accreditation** (ACA) programme from the ACI (Airports Council International) is the only certification specifically to calculate airports' carbon footprint. The programme helps airports lower their CO_2 emissions and establishes a common framework for calculating airports' carbon footprint.

The airports with **ACA certifications** are the following:

- **AT LEVEL 2, REDUCTION**
- **AT LEVEL 1, INVENTORY**

airport carbon accreditation
MAPPING | REDUCTION | OPTIMISATION | NEUTRALITY

Aena with COP 25

The **United Nations Climate Change Conference (**COP 25**)** brought together the world leaders in Madrid in December 2019 with the goal of offering a multilateral response in the struggle against climate change.

We at **Aena welcomed the participants in the Conference** in terminals T2 and T4 in Adolfo Suárez Madrid-Barajas Airport by installing welcome counters where we provided information on the event. Plus, Aena also participated in several **informative talks and colloquia** on how the aviation sector is dealing with the challenge of climate change.

Energy efficiency

In 2019, 60% of the energy we purchased came from renewable sources. Yet we also want to contribute to **energy efficiency** by controlling and lowering our consumption. To do so, we work to identify the areas of improvement in our airports and apply the most efficient solutions.

In this regard, the efficiency measures we apply are subordinated to a variety of external factors, such as changes in the number of passengers and operations. In 2019, **more than 275 million passengers** went through our airports, turning our terminals into "large cities" which must be supplied with energy.

Energy consumption in 2019*
kWh/ATU

*Includes the consumption of fuels, electrical energy, heating and cooling.

2.5%

Reduction in our energy intensity in the period 2018-2019.

Energy consumption

		2017	2018	2019
Fuel consumption (GJ)	**Diesel**	154,070	197,767	174,873
	Petrol	1,995	2,279	2,271
	Natural gas	152,552	153,331	161,560
	Propane	1,153	999	851
	Kerosene	1,992	2,084	2,658
	Subtotal	**311,762**	**356,460**	**342,213**
Energy consumption (GJ)	**Electricity**	3,395,244	3,386,704	3,437,454
	Heating	210,011	213,872	201,131
	Cooling	425,017	402,666	421,865
	Subtotal	**4,030,273**	**4,003,242**	**4,060,450**
Total energy consumption (GJ)		**4,342,035**	**4,359,702**	**4,402,663**

Note: The 2019 figures differ from those cited in the 2019 CR Report because the consolidated figures were used in this report.

We have launched a wide variety of measures aimed at **optimising our energy consumption** in airports, including the following:

Technological improvements in lighting and heating/cooling.

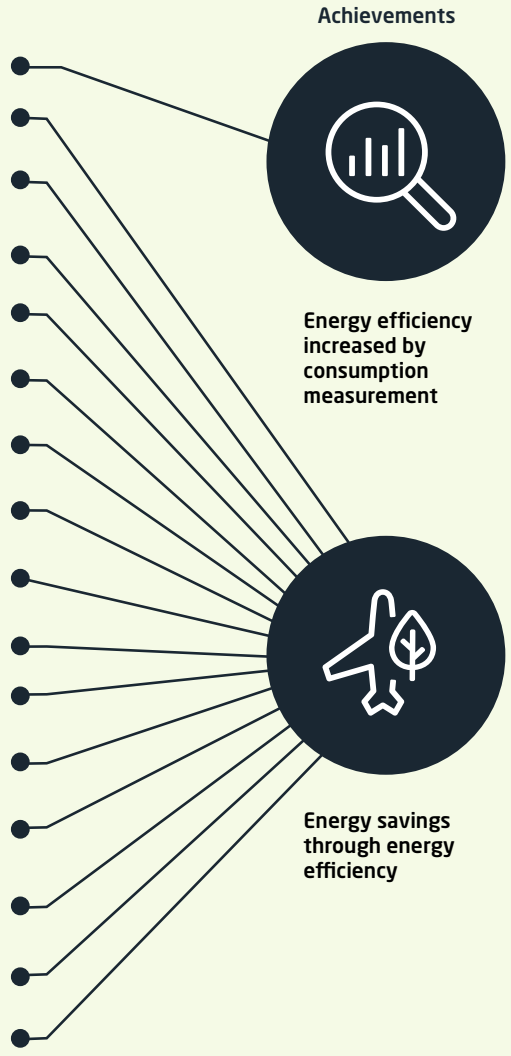
Adapting energy consumption to the airport's real operations.

Improving control over consumption of electrical energy and fossil fuels.

Awareness-raising of our staff.

Most important energy efficiency actions in 2019:

Airport	Action	Description
Adolfo Suárez Madrid-Barajas	Heating/cooling	Implementation of the Energy Management Platform in Terminals
		Supply of a new cooler in T1
		Replacement with relocation of heating/cooling machinery in the tango 14 entrance ramp in T1
Alicante-Elche	Lighting	Change to LED in exterior lighting
		Change to LED lighting in the terminal
Girona-Costa Brava	Lighting	Change to LED lighting in the terminal
Jerez	Heating/cooling	Renewal of heating/cooling equipment in the terminal building
Logroño-Agoncillo	Heating/cooling	Replacement of the current boiler with two gas condensation boilers
Málaga-Costa del Sol	Lighting	Change to LED lighting in tunnels
Palma de Mallorca	Envelope	Thermal insulation actions in the terminal building and modules
	Heating/cooling	New heating/cooling equipment on the departures floor
Reus	Heating/cooling	Installation of new heating/cooling equipment in the arrivals building
Tenerife Sur	Heating/cooling	Improved heating/cooling in the entrance ramps
Valencia	Heating/cooling	Connection of TR heat pump with T1, and by-pass of cooling/heat circuits between them
		Supply with the installation to adapt air conditions equipment for aircraft in T1
		Change in to LED technology in exterior lighting



Energy management platform

At Adolfo Suárez Madrid-Barajas Airport, we have implemented an energy management platform **to track energy consumption** and detect any potential deviations from expected consumption in the terminals. Detecting deviations in real time enables us to make adjustments and identify the problem causing them, thus facilitating energy savings. We hope **to save 4,030 MWh/year** with the platform.

Earth Hour

Ibiza, Menorca, Palma de Mallorca, Fuerteventura and Lanzarote Airports, as well as the Aena central services building, joined the "Earth Hour" initiative in 2019 by turning off or down their lights. Promoted by the WWF (World Wildlife Fund), this "blackout" seeks **to raise awareness of the need to take measures to deal with climate change.**

Renewable energies

Bearing in mind the vast amount of energy that aviation and airports need in order to operate, the air sector is working **to lower is dependency on fossil fuels** by increasing the use of renewable energies, which allow it to lower GHG emissions.

Main renewable energy installations in our airports

Wind turbines
at La Palma Airport.

Photovoltaic modules
at Menorca, Ibiza, Alicante-Elche, AS Madrid-Barajas, Madrid Cuatro-Vientos, La Palma, Valencia y Vigo Airports.

Geothermal energy plant
in Reus.

In 2019, we have continued to promote the use of renewable energies and invest in new technologies, **thus preventing the emissions of 481 equivalent tonnes of de CO_2** and generating 10,467 GJ of renewable energy in our airports. Of this total energy, 85.7% has been generated with wind sources, which are joined by photovoltaic energy and, to a lesser extent, geothermal energy.

Renewable energy generated at Aena airports

		2017	2018	2019
Renewable energy generated (GJ)	Wind	8,071	9,278	8,975
	Photovoltaic	1,600	1,509	1,344
	Solar thermal	424	29	0
	Geothermal	140	156	148
	SUBTOTAL	10,235	10,972	10,467
Renewable energy consumed (GJ)	Wind	7,497	8,324	8,453
	Photovoltaic	1,479	1,416	1,244
	Solar thermal	424	29	0
	Geothermal	140	156	148
	SUBTOTAL	9,540	9,925	9,845
Renewable energy sold (GJ)	Wind	574	954	522
	Photovoltaic	121	93	100
	Solar thermal	0	0	0
	Geothermal	0	0	0
	SUBTOTAL	695	1,047	622

Solar photovoltaic plant in Madrid-Barajas Airport and Aena's Photovoltaic Plan

In 2019, Aena awarded **the construction and implementation of a photovoltaic solar plant** on a plot of land measuring approximately 22 hectares at Adolfo Suárez Madrid-Barajas Airport. Its nominal power will be 7.5 MW in total self-consumption in order to provide clean energy to the Madrid airport. Furthermore, 11.7 GWh will be generated per year, which accounts for 16% of the annual consumption in terminals 1, 2 and 3, the equivalent consumption of more than 3,000 homes per year.

This plant marks the start of an ambitious programme to implement renewable energy for self-consumption, **Aena's Photovoltaic Plan.** With this plan, we aim to produce 950 GWh of renewable energy per year in order to reach 100% energy self-consumption in the airports in the network by 2026, the equivalent consumption of 280,000 homes per year.

CO_2 emissions avoided thanks to the generation of renewable energy for self-consumption at Aena airports

SCOPE 1	2017		2018		2019	
FACILITY*	KWh generated	tCO_2eq avoided	KWh generated	tCO_2eq avoided	KWh generated	tCO_2eq avoided
Cogeneration plant at **Bilbao Airport**	806,932	208	1,067,935	234	10,513	2
Thermal solar collectors at **Barcelona-El Prat Airport**	117,700	30	8,180	2	0	0
Geothermal energy plant **in Reus Airport**	38,914	10	43,257	9	41,224	7
TOTAL	963,546	249	1,119,373	245	51,737	9

In 2019, **60%** of the electrical energy purchased at our airports had a renewable energy certificate, and this will be boosted to 100% in 2020.

144,661 tCO_2eq

144,661 tCO_2eq in emissions avoided thanks to the production of renewable energy in our facilities (481 tCO_2eq) and the purchase of 60% of the electrical energy from renewable sources (144,180 tCO_2eq).

At Aena, we prevent CO_2 emissions by generating renewable energy for self-consumption.

*CO_2 equivalent emissions were calculated via the relationship between the electrical energy generated by the aforementioned facilities and the CO_2 emission factor considered. Electrical factor source: REE.

Note: The 2019 figures differ from those cited in the 2019 CR Annual Report because consolidated figures were used in this report.

CO_2 emissions avoided by generating renewable energy self-consumed in Aena airports

SCOPE 2	2017		2018		2019	
FACILITY*	KWh generated	tCO_2eq avoided	KWh generated	tCO_2eq avoided	KWh generated	tCO_2eq avoided
Wind turbines at La Palma Airport	2,241,916	578	2,577,197	564	2,493,058	411
Photovoltaic modules at **Menorca Airport**	69,983	18	70,320	15	75,777	13
Photovoltaic modules at **Ibiza Airport**	53,574	14	81,977	18	72,184	12
Photovoltaic modules at **Alicante- Elche Airport**	53,006	14	46,413	10	18,771	3
Photovoltaic modules at **Madrid-Barajas Airport**	96,670	25	88,622	19	88,780	15
Photovoltaic modules at **Madrid-Cuatro Vientos Airport**	20,000	5	18,561	4	25,627	4
Photovoltaic modules at **La Palma Airport**	65,373	17	60,291	13	38,301	6
Photovoltaic modules at **Valencia Airport**	29,285	8	32,316	7	34,720	6
Photovoltaic modules at **Vigo Airport**	56,546	15	20,650	5	19,167	3
TOTAL	2,686,353	693	2,996,347	656	2,866,385	473

Focus on electric mobility

In Aena, we are continuing to install **charging stations for electric or hybrid vehicles** in our car parks. In 2019, we installed 92 new charging stations, which join the ones that had already been installed in Adolfo Suárez Madrid-Barajas and Palma de Mallorca Airports, among others. Aena will continue to install charging stations until it has more than 2,000 stations by 2023.

Reduction in fuel emissions

Airports with a sustainable fleet

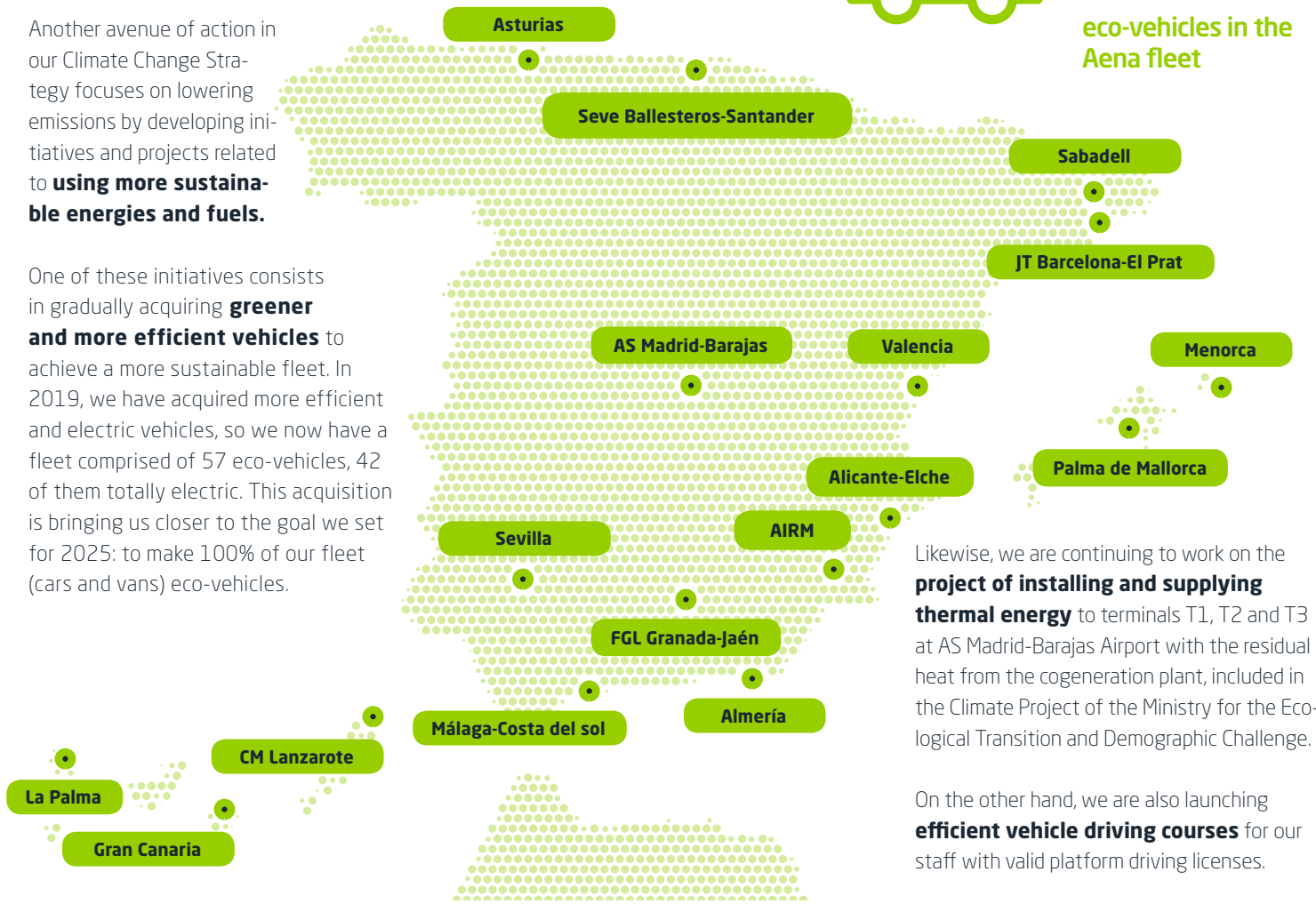
Another avenue of action in our Climate Change Strategy focuses on lowering emissions by developing initiatives and projects related to **using more sustainable energies and fuels.**

One of these initiatives consists in gradually acquiring **greener and more efficient vehicles** to achieve a more sustainable fleet. In 2019, we have acquired more efficient and electric vehicles, so we now have a fleet comprised of 57 eco-vehicles, 42 of them totally electric. This acquisition is bringing us closer to the goal we set for 2025: to make 100% of our fleet (cars and vans) eco-vehicles.

Our objective for 2025:

100%

eco-vehicles in the Aena fleet



Likewise, we are continuing to work on the **project of installing and supplying thermal energy** to terminals T1, T2 and T3 at AS Madrid-Barajas Airport with the residual heat from the cogeneration plant, included in the Climate Project of the Ministry for the Ecological Transition and Demographic Challenge.

On the other hand, we are also launching **efficient vehicle driving courses** for our staff with valid platform driving licenses.

First "follow me" electric car in Alicante-Elche

In 2019, Alicante-Elche Airport acquired its **first electric car** to provide service on the flight field. This vehicle is part of the automobile fleet of the technical operations services in the movement area, better known as aircraft guides.

It is a **100% electric van** with "follow me" functions which is recharged at a quick charge station installed by the airport. This gives the vehicle around 200 km of autonomy per charge, which spans several workdays.

Partnering with third parties

At Aena, we are directly responsible for Scope 1 and 2 emissions, but we also want to help **lower the Scope 3 emissions** generated by other agents operating in the airports, such as airlines and handling agents.

Below we list some of the measures we are enacting to promote lower emissions by third parties.

1 | MEASURES TO LOWER ENERGY CONSUMPTION IN THE LTO AND APU CYCLES.

- **Implantation of A-CDM of CDM** at AS Madrid-Barajas, JT Barcelona-El Prat and Palma de Mallorca Airports. The objetive of AC-CDM or CDM (Airport Collaborative Decision Making or Collaborative Decision Making) is to improve the overall efficiency of airports operations. To do so, it helps the shared use of updated information on operations, which leads to an optimisation of taxi times and therefore lower fuel use and a drop in the emissions generated.
- **Plan to implement fixed 400-Hz electric supply systems for aircraft.** These systems replace the energy supply method for aircraft via APU (Auxiliar Power Units) with the mission of starting the main engines, supplying electricity and air conditioning when the engines are off and providing energy during the flight. Replacing the APUs with fixed systems on the runways which supply 400-Hz electric energy avoids generating noise on the platform and emissions of air pollutants caused by APUs.

2 | MEASURES TO LOWER CONSUMPTION IN HANDLING VEHICLES.

In order to gradually lower the consumption and therefore the emissions from handling equipment, we have incorporated **environmental requirements into the lists of contract conditions** when awarding licenses for this type of activity.

Based on this, the handling agents have developed **a plan to lower CO_2 emissions** with the goal of reducing them by 30% by 2020 at AS Madrid-Barajas Airport and 20% in the other airports. Furthermore, a shared methodology has been established to calculate and track their emissions.

First electric airport bus at Seville Airport

Seville Airport has become the first airport in Spain to incorporate an **electric airport bus,** in line with the goals that Aena set to ensure that handling agents lower their emissions 20% by 2020.

Fostering sustainable mobility

Access to the airports by the users and staff working in our facilities is also a factor where we should make a direct impact to lower energy consumption and therefore the emissions generated.

At Aena, we want to foster **more sustainable transport alternatives and intermodality,** which can lead to major energy savings and lower emissions, in addition to lowering commute times.

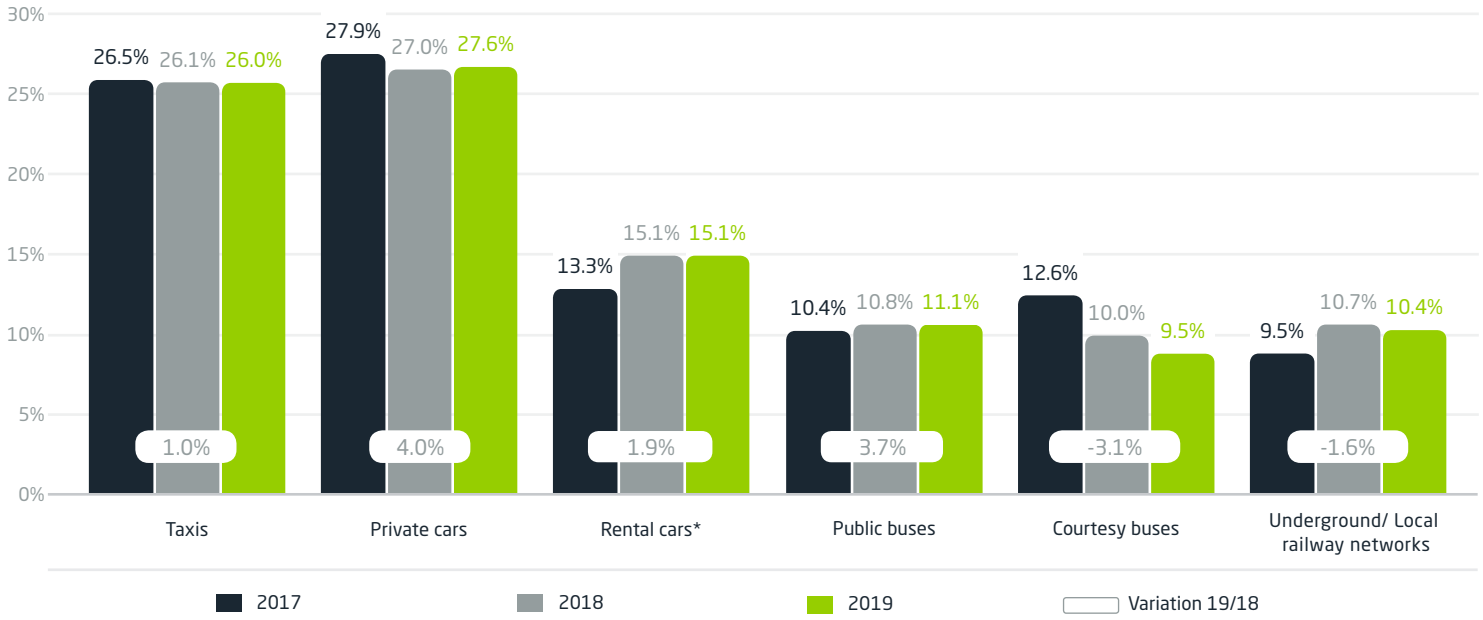
This is why we partner with other administrations and institutions to maintain a competitive transport system in an effort to ensure that our infrastructures integrate with other transport modes to improve accesses and hook up with the railway and urban planning around the airports.

In this sense, in relation to fostering public and collective transport, we have recor-ded a **decrease in users reaching the airports in private cars,** which declined from 30% in 2010 to 28% in 2019.

Drive to use sustainable aviation fuels

One of the sector's focal points in its struggle against climate change is using **sustainable aviation fuels (SAF)** as a measure to lower GHG emissions. Thus, Aena is involved in this challenge by actively partnering with biokerosene producers, airlines and other stakeholders to increase the use and foster the production of this kind of fuel.

Land accesses to airports
(% of departing passengers using land accesses)



* "Rental cars" includes passengers who used a vehicle for hire to reach the airport. Source: Periodic air mobility surveys by Aena.

Higher use of **public transport** has been detected, primarily the underground and train, as well as public buses. On the other hand, the increase in the use of rental cars is largely due to the inclusion of vehicles for hire in this category.

Finally, we are also working to develop specific **Mobility Studies and Plans** for our different airports. These plans encompass the access and transport infrastructures of the cities and the airports themselves in an effort to facilitate the best combinations to reach the airports.

JT Barcelona-El Prat Airport has a **Mobility Plan,** which includes measures like connections between the local railway system and T1, the creation of a working group with the Barcelona Metropolitan Area (AMB), the development of an Action Plan to foster sustainable mobility among our employees, the airport's connection to the town of El Prat de Llobregat via a bicycle lane and the installation of Bicibox, a network of covered bicycle parks.

Managing acoustic impact

We work every day to rise to the major challenge of minimising the acoustic impact in our airports' environs.

At Aena, we are working to make airport activity compatible with the development of the local communities in which we operate.

Avenues of action to lower the acoustic impact of airports

Minimising the noise to make daily aeronautical operations compatible with the wellbeing of nearby communities.

Two-way communication with our stakeholders, paying special attention to the citizens living the closest to our facilities.

Measurement, action and monitoring

The noise levels generated by the aircraft operating in our facilities can be bothersome to communities in their vicinity. Therefore, we work every day to deal with the major challenge of minimising the acoustic impact around our airports.

The noise caused by aircraft is a concern of the people who live near our airports. For this reason, at Aena we prioritise lowering this impact by **measuring, monitoring and minimising the noise.**

We measure the noise

The first task we perform at Aena is **measuring the acoustic effects** generated by aircraft. To determine the noise produced around us, we use three basic tools, as outlined below.

1 Strategic Noise Maps (SNM)

This instrument enables us to **diagnose overall acoustic** exposure in a full year in the areas near the airports with more than 50,000 operations annually. Currently, 11 airports in our network have SNMs (Phase III) and approved Action Plans, namely: Alicante-Elche, Adolfo Suárez Madrid-Barajas, Josep Tarradellas Barcelona-El Prat, Gran Canaria, Ibiza, César Manrique-Lanzarote, Málaga-Costa del Sol, Palma de Mallorca, Tenerife Norte-Ciudad de la Laguna, Tenerife Sur and Valencia.

SNMs and their corresponding Action Plans are revised every five years in compliance with the regulations, and their values are comparable throughout the entire European Union.

2 Acoustic easements

This is the most important tool in **evaluating the current acoustic impact** generated in our airports and to predict how it is evolving. This evaluation enables us to generate a delimited area or easement whose main goal is to define the **degree of incidence** of the noise in the area. In this way, we can take the measures needed to make the operations of our facilities compatible with the different land uses, activities and buildings.

Each easement has an Action Plan which stipulates the **specific improvement actions** aimed at minimising the noise. In 2019, the acoustic easements and corresponding Action Plan were approved for Gran Canaria Airport.

3 Action Plans

Both the SNMs and the acoustic easements require the adoption of Action Plans which contain the **measures aimed at making the operations and development of the airport infrastructures compatible** with the consolidated activities in the region. These measures are focused on **preventing and lowering** the noise in the vicinity, as well as evaluating it over time using **Monitoring and Tracking Programmes**.

Population exposed to noise

SNM PHASE I 2007

NOISE LEVELS	Gran Canaria	Lanzarote Arrecife	Tenerife Sur	Tenerife Norte	Alicante Elche	Bilbao	Barcelona	Ibiza	Madrid	Málaga	Palma de Mallorca	Valencia	Sevilla
Lday 65 dB(A)	191	-	0	1,049	84	24	11	-	2,058	299	90	10	-
Levening 65 dB(A)	66	-	0	825	90	23	19	-	1,957	314	98	8	-
Lnight 55 dB(A)	614	-	120	0	172	23	24	-	708	605	336	52	-

SNM PHASE II 2012

NOISE LEVELS	Gran Canaria	Lanzarote Arrecife	Tenerife Sur	Tenerife Norte	Alicante Elche	Bilbao	Barcelona	Ibiza	Madrid	Málaga	Palma de Mallorca	Valencia	Sevilla
Lday 65 dB(A)	57	-	0	475	61	29	23	9	1,824	232	110	3	0
Levening 65 dB(A)	0	-	0	198	60	506	18	9	149	240	110	3	0
Lnight 55 dB(A)	42	-	45	0	112	0	26	637	38	348	152	19	0

SNM PHASE III 2017

NOISE LEVELS	Gran Canaria	Lanzarote Arrecife	Tenerife Sur	Tenerife Norte	Alicante Elche	Bilbao	Barcelona	Ibiza	Madrid	Málaga	Palma de Mallorca	Valencia	Sevilla
Lday 65 dB(A)	282	304	20	252	86	-	13	14	1,751	319	177	1	-
Levening 65 dB(A)	0	294	0	13	62	-	14	14	1,497	255	187	1	-
Lnight 55 dB(A)	308	0	90	0	201	-	13	591	1,754*	1,520	515	91	-

In airports marked with a dash in the table, this is because their SNM was not drafted given that when these maps were made the airport did not yet have 50,000 operations per year.

*The increase in the nocturnal values at Adolfo Suárez Madrid-Barajas Airport is due to the maintenance actions on runway 32R-14L. These actions have required the non-preferential runway (32L-14R) to be used during 2016. The levels of noise Lday, Lafternoon and Lnight correspond to the applicable regulations in each case.

Green landings

In order to continue improving our commitment to minimising noise, in 2019 we kept up our partnership with Enaire, and we worked with the leading airlines to search for synergies in implementing Continuous Descent Approach (CDA), also called **green landings.**

This type of aircraft landing entails approach and descent manoeuvres which lower noise pollution and fuel consumption and ultimately CO_2 emissions.

This environmental collaborative management model designed by Eurocontrol under the Collaborative Environmental Management (CEM) framework seeks to find common solutions to environmental challenges that meet the needs of all stakeholders.

We take actions to lower noise

Once we have identified negative acoustic effects, we can define specific measures to minimise it. In addition to working to lower the noise level in our airports, at Aena we also **partner with other actors** in a range of actions aimed at lowering the noise in the airport vicinity:

Lowering noise at the source: Adopting international agreements to lower the acoustic levels of aircraft.

Direct measures to lower noise:

- Use of **preferential combinations of runways,** identifying those with lower negative acoustic effects on the vicinity.
- **Shifting thresholds,** increasing the flyover height in more areas.
- **Design and optimisation of routes,** incorporation more precise navigation systems to lower dispersion.
- **Operational noise abatement procedures on landing** which entail applying measures that lower the acoustic impact.
- **Limitation on the use of reverse thrust,** a system used when landing on short runways, which consist in reversing the expulsion of gases from the aircraft's reactor to slow it down.
- **Continuous descent approaches (CDA),** which consist in a landing system which allows the aircraft to descend in a less noisy aerodynamic configuration.
- **Operational noise abatement procedures on land,** such as limiting engine testing at times or in places that are more sensitive.

Introduction of specific aircraft restrictions (AMC).

Noise rate systems.

Support for air traffic control and discipline.

Pioneers in accrediting the noise measurement system

Adolfo Suárez Madrid-Barajas and Barcelona-El Prat Airports have become the first in the world to provide **accredited noise data in accordance with the ISO 20906 standard** (Unattended monitoring of aircraft sound in the vicinity of airports), specifically to track the negative acoustic effects via noise monitoring systems and airport flight paths.

Securing this accreditation is yet another step towards assuring the quality of the noise data that Aena offers to the public, as these data are registered by using procedures, tools and techniques that follow the ISO 20906 standard. Everything is endorsed by an accrediting agency like ENAC, which is recognised in more than 90 countries.

We monitor and check

At Aena, we track air routes and noise levels at different airport environments through **Noise Monitoring Systems (NMSs)**. These systems are comprised of a set of microphones strategically installed around our main airports to detect, measure and associate the noise produced by each aircraft flying over the terminals with noise monitoring microphones. The information on each sound event is crossed with flight plans and radar paths to match it with the aircraft responsible for the noise.

In 2019, the **Noise Monitoring System** was implemented at Bilbao, Tenerife Norte and Tenerife Sur Airports, which join those previously installed in the following airports: Alicante-Elche, Adolfo Suárez Madrid-Barajas, Josep Tarradellas Barcelona-El Prat, Gran Canaria, Málaga-Costa del Sol, Palma de Mallorca and Valencia.

Plus, we also **measure the noise generated by the aircraft on land,** especially at night, the most sensitive time bracket for people living in the vicinity of our airports.

Dissemination and transparency

Once we are aware of our in acoustic impact, the information collected is made available to the different stakeholders.

The main means used for this communication is **interactive noise maps (WebTrak),** an online tool that provides reliable information virtually in real time to guarantee the safety of residents living near airports.

On WebTrak we show the data on the flight number, type of aircraft, altitude, route taken and noise levels associated which each of the operations in our airports with just a 30-minute delay. Eleven airports currently have this **interactive system,** which can be checked on the Aena website.

Monthly Acoustic Reports

Based on the sound measurements we take in our terminals, we also develop **Monthly Acoustic Reports,** which provide information on the noise data evaluations recorded in the terminals being monitored, as well as analyses of the dispersion of the trajectories in the towns in the vicinity of the airport. It also includes the monthly evolution of the different configurations.

These reports are available for consultation on each airport's website, which can be accessed via the Aena corporate website.

Noise Insulation Plans

Our commitment to society to make our airport activity compatible with the development and wellbeing of the people living in the vicinity of our facilities is embodied in the implementation of airports' Noise Insulation Plans (NIP). Both interested residents and local administrations take part in developing these plans.

This measure started more than 20 years ago upon the expansion of Adolfo Suárez Madrid-Barajas Airport and is currently **underway at 20 airports** in the network.

The main goal of acoustic insulation actions is **to ensure that the acoustic quality objectives set** in Royal Decree 1367/2007 are fulfilled in the homes and buildings included in each of the Plans.

We take sound measurements inside homes to ascertain specific improvement needs.

Our actions are aimed at fulfilling the applicable **acoustic quality objectives.**

Conditions for your home to be included in an AIP

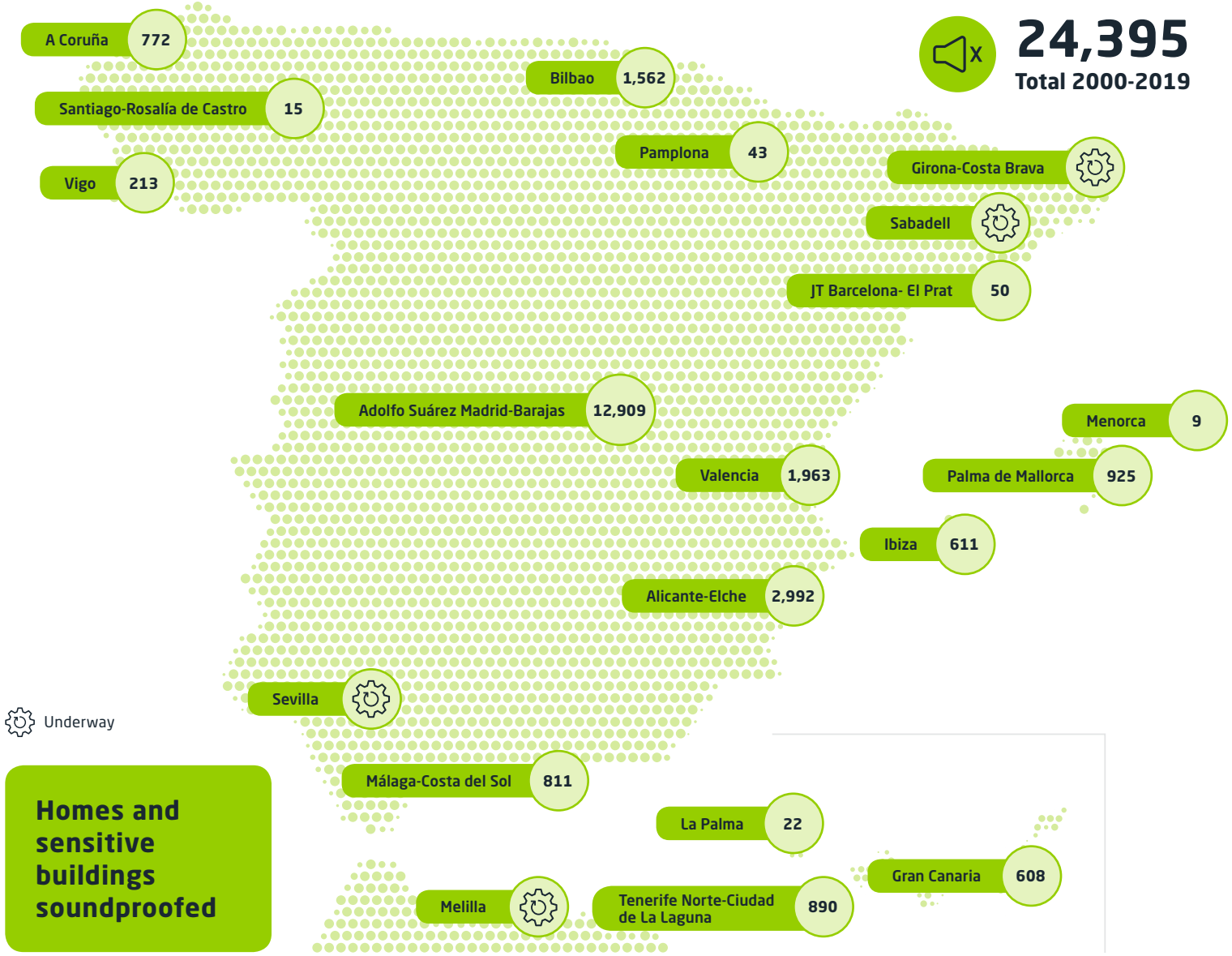
1. What **is contained in the acoustic footprint on the airport** that delimits the NIP area.
2. It must be a **home or building for healthcare, education or cultural use.**
3. The building construction must have a **building licence issued prior to the publication of the environmental resolution** or acoustic easement, as applicable.

Once it is determined that a building meets the requirements to be included in an NIP, a series of acoustic measurements are taken inside it to determine its supplementary acoustic insulation needs, which depend on the noise level it can withstand and its construction qualities. Later, the corresponding **acoustic insulation project** specifically for the building is drawn up, approved and implemented, and the actions are paid for.

Aena reports on these actions to the corresponding Environmental Monitoring Commissions, as well as the different mixed commissions created to establish the acoustic easements and their associated Action Plans. The company also has a specific management office which provides information, monitors implementation and manages NIPs.

In 2019, **578 soundproofing actions** were conducted in homes and sensitive buildings, which entailed an investment of €7.4M.

In addition to the number of homes indicated in and associated with the Corporate Responsibility Strategic Plan, **the acoustic insulation was improved in two schools** located in the provinces of Alicante and Valencia.



Key NIP data in the period 2000-2019

24,395

Buildings **soundproofed.**

330.65 **millones de €**

Earmarked to **soundproofing actions.**

Where can you find out if your home is included in an NIP?

We make our **Acoustic Insulation Plan Management Office** available to our neighbours to answer any inquiries in this regard.

Thus, they may **contact the NIP Management Office** via the telephone number or email set up for this purpose to find our whether they are included in the NIP. To do so, they should provide the exact address of the home, including its cadastral reference.

If you want to know more about the **implementation status** of Acoustic Insulation Plans, it can also be checked on the Aena website.

915 903 170

oficina.paa@ineco.com

Aena.es

Residents have an **Noise Insulation Plan Management Office** where they can send any inquiry about this activity and remind those who have not asked for an update of these actions about their right to request them.

Any **carpentry and glass installed** as replacements are premium quality.

All actions that must be undertaken **are paid wholly by Aena,** and the resident need make no payments.

The actions usually lead to **noise reductions** of up to 5 dB.

In addition to the clear improvement in acoustic insulation, the **thermal insulation** also improves, leading to **savings in energy consumption.**

The **soundproofing actions** are not considered finished until the neighbour indicates their conformity with the projects undertaken.

One footprint for each target

As aforementioned, at Aena we carry out three types of noise footprints to find out the sound level in the airport surroundings.
Here is a reminder of the aims:

1. Strategic Noise Map (SNM)

What is it?

The noise footprint of the SNM was corresponding to the acoustic situation of a given year, providing information on sound levels and the population exposed to them.

What is the aim?

EVALUATE uniformly and with comparable criteria the noise of the various means of transport by allowing the authorities to jointly assess all noise sources a ecting urban areas.

2. Acoustic Easement

What is it?

The main tool to assess the acoustic impact in the current and future situation of the airports, and leads to an action that establishes an improvement plan, including the Soundproofing Plan.

What is the aim?

COMPATIBILIZING the activity of the airports with the different uses of the territory's soil, activities and buildings.

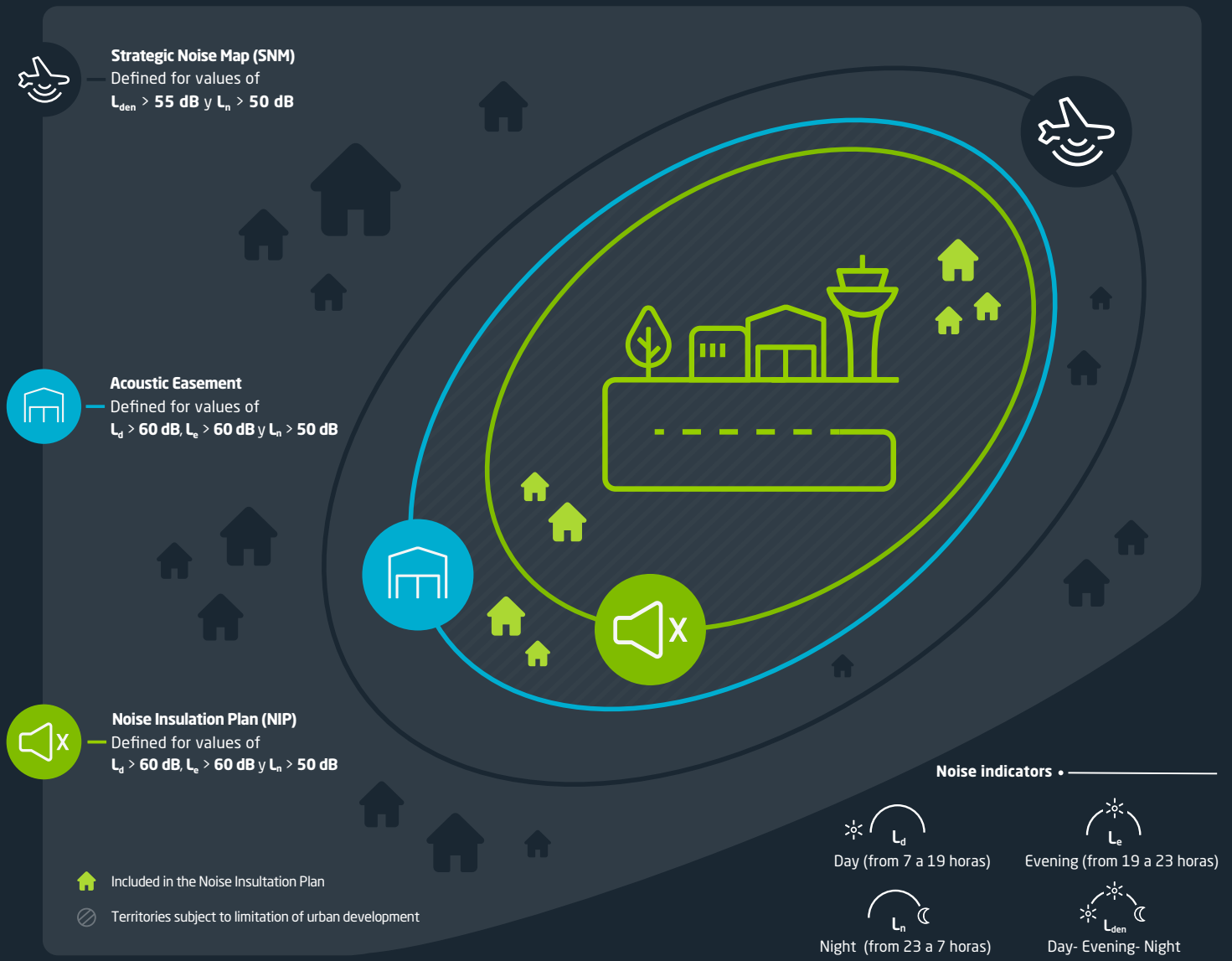
3. Noise Insulation Plan (NIP)

What is it?

Noise footprint is associated with the Declarations of Environmental Impact (EIS) and/or acoustic easements.

What is the aim?

To MINIMIZE the inconvenience caused by the aircraft through soundproofing actions that allows to meet the acoustic quality objectives inside homes and buildings of sensible use.



Dialogue and participation

Aena believes it is essential to hear our stakeholders' opinions, suggestions and requests in order to improve our noise management. Therefore, we are dealing with an increase in the social problem stemming from noise disturbances caused by an increase in air traffic and growth in the towns and buildings in the vicinity of airports.

Thus, in 2019 we continued to **insure constant and fluid two-way communication** with the public administrations in charge of airport activity and associations. Furthermore, we have reinforced our relationship with these stakeholders by creating specific working groups on the matter in order to work jointly towards constant improvement.

Relationship with our vicinity

INSTITUTIONAL RELATIONS

We partner with administrations and stakeholders to extend the benefits of noise reduction measures to new airport facilities.

- **Environmental monitoring commissions.**
- **Mixed commissions.**
- **Participants:** Aena, ENAIRE, city councils, Ministry of Public Works, Ministry of the Environment and autonomous communities.

WITH NEIGHBOURHOOD ASSOCIATIONS

Meetings with residents near the leading airports.

- **Environmental coordination commission** at Barcelona-El Prat Airport.
- **Participants:** Aena, ENAIRE, neighbourhood associations and city councils.

TECHNICAL MEETINGS

Collecting and analysing proposals for noise minimisation measures in towns and neighbourhood associations.

- **Noise technical working group.**
- **Participants:**Aena, ENAIRE, city councils, Ministry of Public Works, Ministry of the Environment and autonomous communities.

Environmental protection

Enjoying a healthy planet that has an environment in good conditions is possible by responsibly using natural resources like water and energy, conserving biodiversity and properly managing waste.

Responsible water use

Spain is a country with a water deficit throughout many of its regions, and this is further aggravated during periods of drought, giving rise to greater hydric stress.

Many of our airports are located in these regions, so we are aware of these limitations and of the **importance of optimising water consumption.**

Water is used by the thousands of people who travel through our facilities every day, including employees, passengers and any other user. Therefore, we control the **water used for human consumption,** to watering green zones, cleaning, fire prevention services and construction.

Likewise, we are implementing innovative initiatives in our airports to **lower the consumption of water resources.** They include implementing automatic fire detection systems, maintaining the network and monitoring and fine-tuning consumption control systems which enable us to rationalise water use.

The fact that the number of passengers going through our airports increases every year implies higher water use. For this reason, in 2019 we experienced a slight rise in water consumption compared to the previous year.

Overall water consumption by supply source*
(thousands of m³)

*The figures from previous years may vary because the counting and calculation methods have improved.

Efficient Water Management

The Alicante-Elche Airport has implemented a pioneering system in Spanish airports which consists in **using water discarded from different processes** and giving it a second use.

This innovative facility collects **three kinds of water:** from terminal washrooms, the condensed water produced in air conditioning and heating, and wastewater from the reverse-osmosis purified water supplied to the restaurants in the terminal.

The goal of this measure is to **save 15% in airport water consumption,** which is huge savings bearing in mind Alicante Airport's location in a region that suffers from long periods of drought only broken by torrential rains.

Aena's commitment to lowering use of this invaluable resource has led to the development of a **specific strategic plan to manage water in airports**, which will enable us to diagnose and establish a framework of specific action in line with the contents of the Aena 2018-2021 Strategic Plan.

Another initiative already implemented in airports located in regions with greater hydric stress, such as islands, consists in **reusing purified wastewater** to water our green zones.

In this way, we avoid using extra water consumption from the grid for this purpose. In 2019, a total of **303,927.80 m³ de of water was used in our facilities.**

Plus, bearing in mind that part of the water used is for human consumption, we believe it is extremely important to raise the **awareness of users** of our facilities. To this end, we have installed specific posters in services asking passengers and our own employees to use this resource responsibly.

Monitoring air quality

We monitor air quality through the air quality measurement stations located in several airports managed by Aena, which enables us to verify our compliance with the established ranges.

These **measurement stations** are located in the following airports in the network: Adolfo Suárez Madrid-Barajas, Josep Tarradellas Barcelona-El Prat, Palma de Mallorca, Alicante-Elche and Málaga-Costa del Sol. Some of these stations are integrated into the air quality monitoring networks of their respective autonomous communities.

We use them to measure the concentration levels of the main substances such as sulphur dioxide (SO_2), nitrogen oxide (NO_x) and particulate matter (PM) caused by both Aena's activity and other sources present in the environment. In this way, we can continuously and automatically control the air quality in different airports' spheres of influence.

The **reports from the monitoring network** at Adolfo Suárez Madrid-Barajas Airport, as well as the data from the stations near Josep Tarradellas Barcelona-El Prat Airport, which are affiliated with the Government of Catalonia network, may be checked on the Aena website.

- Reports from the **Adolfo Suárez Madrid-Barajas Airport monitoring network.**
- Data from the **stations near Josep Tarradellas Barcelona-El Prat Airport.**

Other emissions into the atmosphere

In addition to controlling the air quality or emission levels via the aforementioned stations, we also calculate the emissions stemming from Aena's activity via the other consumption of different fuels.

The graph below shows the evolution in different emissions of NO_x, SO_2, particulates, CO and non-methane volatile organic compounds (NMVOC) by type of fuel.

AVIATOR project

At Aena, we focus on developing innovative solutions to ascertain and control air quality. One example of this is **AVIATOR,** a project being spearheaded by the National Technical Aerospace Institute (INTA) in which AS Madrid-Barajas airport is participating. This solution enables us to further our knowledge of the dispersion of NO_x, SO_x and par-ticulate matter caused by aircraft ope-rations. The project is being executed within the European Union Horizon 2020 framework programme.

The objective of AVIATOR is t**o impro-ve the measurement, modelling and evaluation of emissions** from aircraft engines and their effects on the surrounding air quality, such that the results obtained in the tests we conduct in different scenarios are used to improve the air sector's inte-gration into the environment.

Nitrogen oxides (NO_x), sulphur oxide (SO_x) and other significant air emissions.

2017	NO_x(t)	SO_x(t)	CO(t)	NMVOC(t)	PM10(t)	PM2,5(t)
Diesel	63.0204	5.3548	19.9423	4.7504	4.0223	3.7533
Petrol	0.6625	0.0005	5.0497	0.5813	0.0015	0.0015
Natural gas	11.2889	0.1022	4.4240	3.5087	0.1190	0.1190
Propane	0.0804	0.0007	0.0505	0.0425	0.0697	0.0697
Kerosene	0.2316	0.0469	30.9330	0.9307	6.9904	6.9904
Total	**75.2838**	**5.5051**	**60.3995**	**9.8137**	**11.2029**	**10.9339**

2018	NO_x(t)	SO_x(t)	CO(t)	NMVOC(t)	PM10(t)	PM2,5(t)
Diesel	82.5771	7.3978	26.1659	6.4272	5.3223	4.9631
Petrol	0.7611	0.0005	5.4090	0.6609	0.0017	0.0017
Natural gas	11.3465	0.1027	4.4466	3.5266	0.1196	0.1196
Propane	0.0680	0.0006	0.0495	0.0423	0.0836	0.0836
Kerosene	0.2423	0.0490	32.3618	0.9737	7.3133	7.3133
Total	**94.9950**	**7.5507**	**68.4328**	**11.6306**	**12.8406**	**12.4813**

2019	NO_x(t)	SO_x(t)	CO(t)	NMVOC(t)	PM10(t)	PM2,5(t)
Diesel	69.5979	6.3178	21.9606	5.1941	4.4714	4.1421
Petrol	0.7517	0.0005	5.9716	0.6639	0.0018	0.0018
Natural gas	11.9555	0.1082	4.6852	3.7159	0.1260	0.1260
Propane	0.0587	0.0005	0.0394	0.0334	0.0601	0.0601
Kerosene	0.3090	0.0625	41.2623	1.2415	9.3247	9.3247
Total	**82.6728**	**6.4896**	**73.9192**	**10.8487**	**13.9841**	**13.6548**

Protecting biodiversity

At Aena, we help prevent the loss of biodiversity.

Twenty-four airports in the Aena network in Spain have some kind of environmental protection in their lands. This area totals more than 23 km².

At Aena, we work to preserve and maintain biodiversity via specific actions to make our activity **compatible with conserving the natural heritage.**

These actions are carried out both from the airports themselves and in conjunction and coordination with outside stakeholders, such as natural environment managers, owners of facilities and people in charge of other activities in the vicinity of the airports.

With each planned expansion of our airports, we conduct **environmental impact evaluation studies** based on the laws currently in force which enable us to prevent any negative effects on these natural environments. The decisions taken in relation to these studies can be checked in the environment section on our website.

Some of the coordination actions carried out in 2019 were:

Huesca-Pyrenees Airport:

Relocation of white stork nest in the church in Alcalá del Obispo.

This action was carried out in the beginning of the year and consisted in removing the white stork nest from the roof of the church in Alcalá de Obispo and **relocating it to an alternative nest** in the town of Novales. The action was needed because these stork's movements searching food crossed the airport vicinity and posed a risk in the approaches to header 30L in the airport.

This action was complemented with the remodelling of the church's tower, which was given a new roof.

The **coordination and collaboration** of AESA, the Novales and Alcalá del Obispo town councils, the bishopric and INAGA (Aragonese Environmental Management Institute) of the Government of Aragon was needed to carry this out.

Vigo Airport:

Coordination to fill the occasional wetlands located east of the airport.

East of the airport near the fence around its perimeter, lands that pooled easily which were **used by ducks and a few grey herons** were detected. The potential risk lay in possible movements by these birds towards or from a nearby golf course, which would entail crossing the runway at a medium to low flying height.

Thanks to coordination with the community of Montes de Guizán, in 2019 this zone was filled, thus hindering these temporary pools from developing and preventing birds from crossing the runways and potentially impacting the aircraft.

Bilbao Airport:

Real-time action protocol when large birds-of-prey are spotted.

Due to the increased spottings of vultures around the Bilbao Airport in recent years, the Regional Government of Bizkaia and the airport have launched an action protocol to promote coordination and to improve the efficiency of actions when the species is spotted near the airfield.

When **pilots warn of the presence of birds** outside the airport premises, the airport reports this to the forest rangers, who check it and report back to the airport on whether there are any remains that may be attractive to these birds. They also provide information on how the remains are being managed, as well as the appearance of any focal points (either permanent or temporary) which may attract vultures.

Thanks to this partnership, not only do we know more about vulture behaviour in the nature of their focal points of attraction, but coordination **has improved and actions are more effective.**

New measures to control and track fauna

Falconry is still the main control method used to avoid wild bird intrusions in our airports, but thanks to the advance of new technologies, including the search for other less technological but equally novel solutions, we are still making progress and lowering the risk of the impact with fauna, thus making the higher levels of operational safety compatible with respect for the natural environments where the airports in the Aena network are located.

Throughout 2019, we have worked to search for a **novel, ecological solution** to prevent lagomorphs (rabbits and hares) from crossing the runways at Seville Airport.

To do so, we have used a natural fibere rope impregnated with organic repellents to serve as a "chemical fence". The entire rope, which is more than 1 kilometre long, stretches from heading 09 to E3.

The result is that rabbits no longer cross the area or the runway near the area where the rope was installed, as their natural habitat was displaced towards the south of the runway. In consequence, there has been a **lower number of spottings and incidents** in the more operationally sensitive places.

Information with the different groups at airports and aircraft users

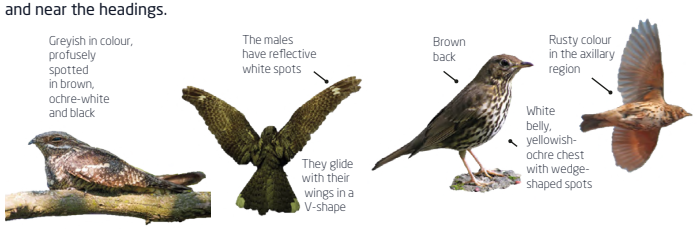
Throughout 2019, as part of the measures to lower the risk of impact with fauna, we have developed new **informational material** with the design of a poster which is going to be adapted to the main birds found at each airport. These posters will be distributed among airport groups and aircraft pilots.

The goal of this measure is **to improve identification of the most common birds** at the airport in order to get more precise data on spottings and impacts and contribute to focusing fauna impact risk mitigation measures more specifically.

Frequent birds at the Santiago Airport

Passerines

These are small birds found in grasslands feeding on insects or seeds both inside and near the headings.



European nightjar *(Caprimulgus europaeus)*
Small (100 g). Low gregariousness. Does not form flocks. One-directional, erratic flight. Nocturnal. Summer species.

Song thrush *(Turdus philomelos)*
Small (80 g). Low gregariousness. Dispersedflock. One-directional flight. Resident, winter species.

Meadow pipit *(Anthus pratensis)*
Small (19 g). Medium gregariousness. Dispersed flock. One-directional flight. Winter species.

White wagtail *(Motacilla alba)*
Small (23 g). Low gregariousness. Dispersed flock. One-directional flight. Resident, winter species.

Eurasian skylark *(Alauda arvensis)*
Small (38 g). Low gregariousness. Dispersed flock. One-directionalflight. Resident, winter species.

Waders

European golden plover *(Pluvialis apricaria)*
Medium-sized (220 g). Medium gregariousness. Compact flock. One-directional flight. Winter species, migratory.

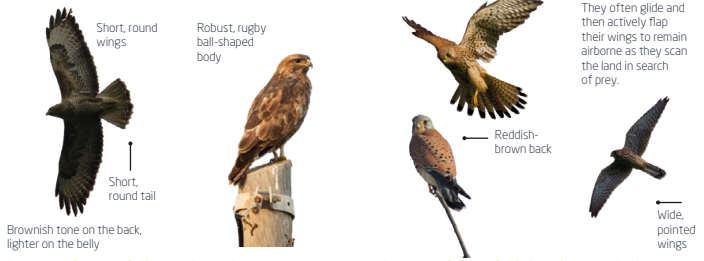
Corvids

They move between the inner grassy areas and the perimeter forest stands around the airport. There are two main areas of concentration in both headers.

Carrion crow *(Corvus corone)*
Large (500 g). Medium gregariousness. Dispersed flock. One-directional flight. Resident.

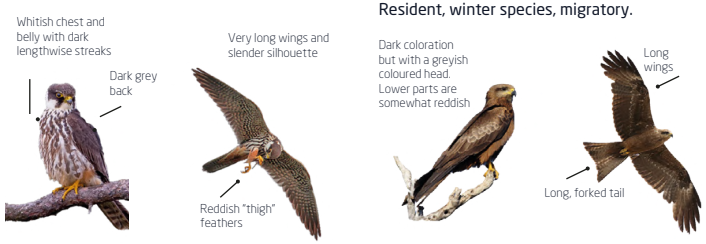
Small birds of prey

They are often seen on the east side of the airport and over the grasslands, both inside and at the headers. Several areas of concentration of this species have also been found on either side of the headers.



Common buzzard *(Buteo buteo)*
Large (1,400 g). Low gregariousness. Does not form flocks. One-directional flight. Resident.

Common kestrel *(Falco tinnunculus)*
Medium-sized (270 g). Low gregariousness. Does not form flocks. One-directional flight. Resident, winter species, migratory.



Eurasian hobby *(Falco subbuteo)*
Medium-sized (340 g). Low gregariousness. Does not form flocks. One-directional flight. Summer species.

Black kite *(Milvus migrans)*
Large (1,075 g). Low gregariousness. May make dispersed flocks. One-directional flight. Summer species.

Peregrine falcon *(Falco peregrinus)*
Large (1,000 g). Low gregariousness. Does not form flocks. One-directional flight. Resident, winter species.

Little owl *(Athene noctua)*
Medium-sized (150 g). Low gregariousness. Does not form flocks. One-directional flight. Nocturnal. Resident.

Lanzarote is caring for its autochthonous species

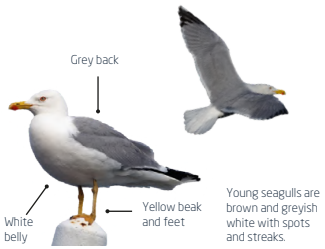
César Manrique-Lanzarote Airport, in conjunction with the Biosphere Reserve, **has planted autochthonous species** in the roundabout at the entrance to the airport, now called the "Biosphere Reserve Roundabout".

With the **"Junt@s Somos Biosfera"** (Together We're the Biosphere) project, different species autochthonous to the island were planted in order to foster the conservation of its biodiversity and promote the development of the plant cover.

Frequent birds at the Santiago Airport

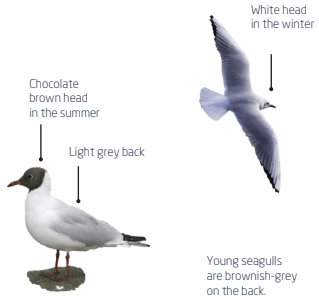
Large seagulls

Apparently constant, though not regular, flows throughout the year. Greater presence at times of coastal squalls with prevailing S or SW winds.



Yellow-legged gull *(Larus michahellis)*
Large (1,500 g). Medium gregariousness. Dispersed flock. One-directional flight. Resident.

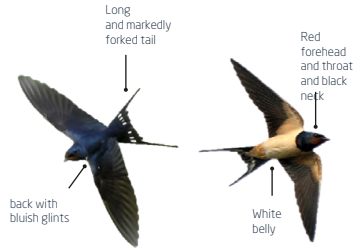
Seagulls



Black-headed gull *(Chroicocephalus ridibundus)*
Medium-sized (250 g). Low gregariousness. Dispersed flock. One-directional flight. Winter species, migratory.

Swallows

Summer species. They commonly stay in the airport's vicinity to hunt for food (insects) on the vegetation.



Common swift *(Apus apus)*
Small (45 g). High gregariousness. Dispersed flock. Multidirectional flight. Summer species, migratory.

Barn swallow *(Hirundo rustica)*
Small (20 g). High gregariousness. Dispersed flock. Multidirectional flight. Summer species, migratory

Doves and pigeons

They regularly travel between the forest stands around the airport, especially coming from or heading towards the former golf course, probably because it is quiet.

Rock dove *(Columba livia domestica)*
Medium-sized (410 g). Medium gregariousness. Dispersed flock. One-directional flight. Resident.

Common wood pigeon *(Columba palumbus)*
Medium-sized (550 g). Medium gregariousness. Dispersed flock. One-directional flight. Resident, winter species.

Starlings

They display frequent flows in the land zone of the airport amidst the buildings and in the green zones. Permanent flows throughout the year, especially in the winter.

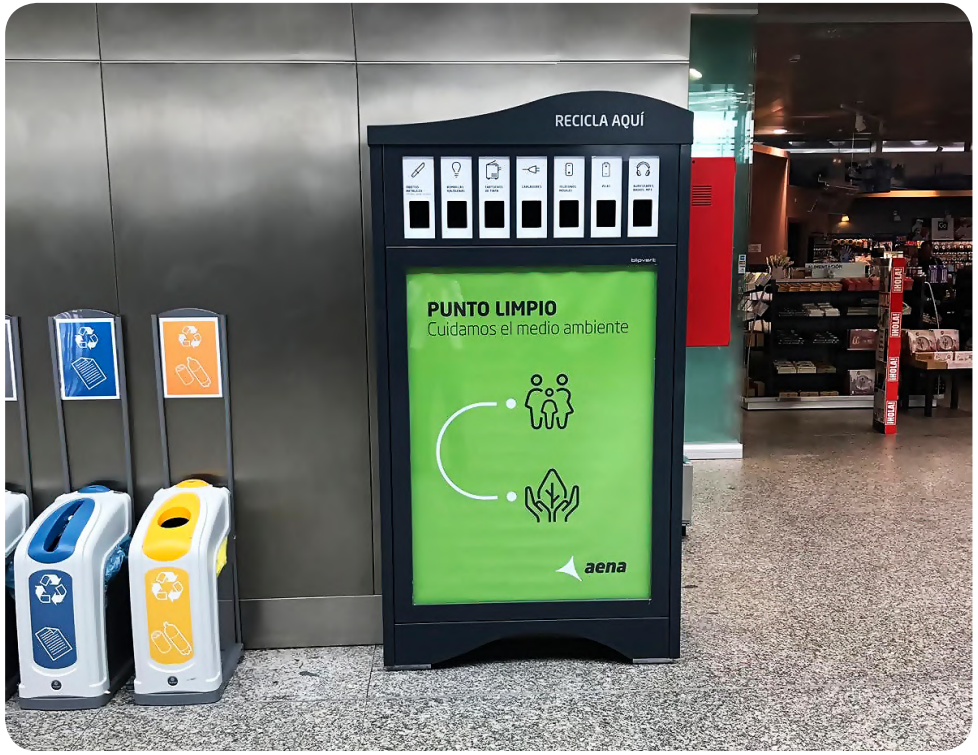
Spotless starling *(Sturnus unicolor)*
Medium-sized (80 g). High gregariousness. Large, compact flock. Multidirectional flight. Resident, winter species.

Common starling *(Sturnus vulgaris)*
Medium-sized (75 g). High gregariousness. Large, compact flock. Multidirectional flight. Makes mixed flocks with the local spotless starling population. Winter species.

Photographers

Jörg Hempel, Pierre Selim, Hans Hillewaert, Christian Ferrer, Pau Artigas, Zeynel Cebeci, Richard Crossley, Ómar Runólfsso, Steve Slater, Aomorikuma, Aiwok, Jacob Spinks, Zeynel Cebeci, xulescu_g, Artemy Voikhansky, Andreas Eichler, Alexey Tolmachov, Rama, Tony Wills, Mark Kilner, Andy Morffew, Peter Rohrbeck, Brian McCauley, Patrickkavanagh, Jenny Jones, xulescu_g, Neil Smith, Carlos Delgado, Steve Childs, Andy Morffew, GT1976, Dario Sanches, Tristan Ferne, Andrè Bellingrodt, Luis Egido, Esteban Argerich, Bramblejungle, Mostafa Meraji y Pierre Selim. In order starting from the upper left. Source: Wikimedia Commons and Flickr.Images modified for transparency.

Waste management



Over the course of a year, an airport's daily activity generates many tonnes of waste which have to be managed to preserve natural resources, lower the pollution stemming from their accumulation and promote their proper recycling. Several of our airports are on par with a city, yet hazardous waste is also generated, some of the most representative being used are mineral oils, batteries, fluorescent lights, absorbents contaminated in hydrocarbon collection and contaminated empty containers, among others.

For this reason, at Aena we work **to ensure proper waste management** by setting the following priorities:

- **To lower the amount of waste generated** by our activities.
- **To lower the amount of ordinary** (non-recycled) waste generated in the airport facilities, especially related to commercial activity.
- **To monitor and track the different types of waste generated** in all the airports' activities (monitoring contractors and licensees) to ensure proper waste sorting, collection and external management.

Several airports have a **transfer plan for non-hazardous waste**, which allows the conditions where they are temporarily deposited to be concentrated and improved, especially the non-recycled waste similar to household waste. Generally speaking, there are **points to temporarily deposit hazardous waste**, all of them equipped with contamination prevention measures depending on their nature. In these zones, the waste is sorted into containers until it is removed by authorised managers.

The airports' environment departments **exhaustively track** all the waste generated, from its origin and storage to its removal and transfer to an authorised manager for outside treatment. Proper management of the waste generated by Aena is verified in Operations Control's periodic tracking of our activities. In the case of waste generated by licensee and contracting companies, this verification is conducted via the periodic tracking by these companies' Environmental Monitoring Plans.

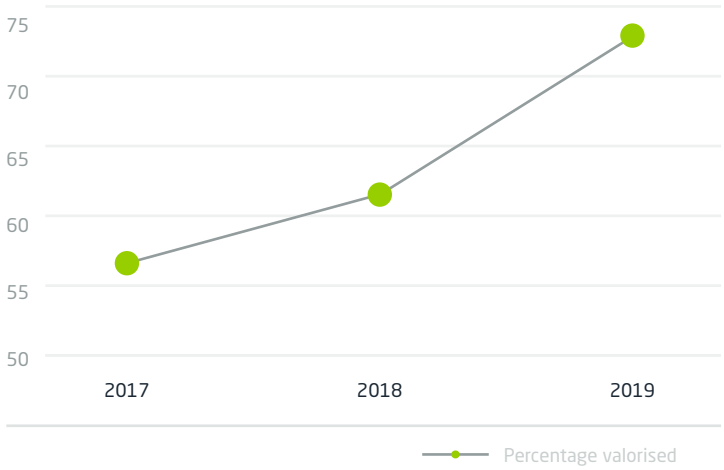
At Aena, **we focus on waste valorisation** over leaving waste in landfills, which matches the rising trend in the percentage of waste valorised in recent years.

Likewise, many airports reuse some waste by giving it a **second use,** with actions such as reusing the sludge from the purifying station as fertiliser in the landscaped areas or making compost at Bilbao Airport.

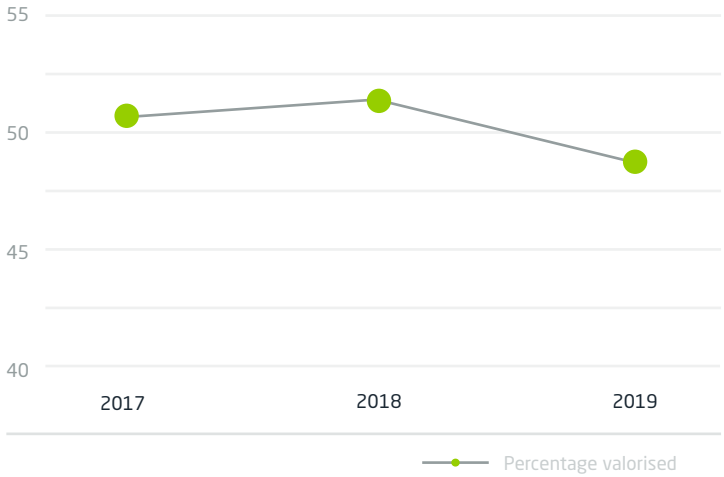
The clean point at Vigo Airport

Vigo Airport has launched a **clean point** where objects like batteries, chargers, headphones or small metal objects can be recycled; they have been placed near the boarding filter to facilitate their use by both passengers and airport employees. This initiative reinforces the airport's focus on environmental conservation.

Valorisation of non-hazardous waste



Valorisation of hazardous waste



74%

valorisation of non-hazardous waste

We valorise 74% of the non-hazardous waste and 47% of the hazardous waste that we generate and reuse it as raw materials or energy.

In 2019, **the percentage of non-hazardous waste valorised in our airports rose 13%** over 2018.

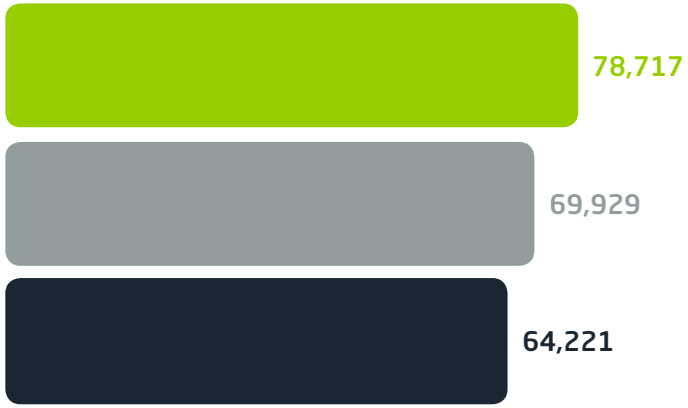
This year's increases in the amount of hazardous and non-hazardous waste generated in our airport facilities are primarily due to the fact that certain waste is not generated in constant amounts every year, such as disposing of unused vehicles (which were sent for valorisation) and replacing them with other more efficient vehicles.

Sustainable AGP: The challenge of Málaga-Costa del Sol Airport workers

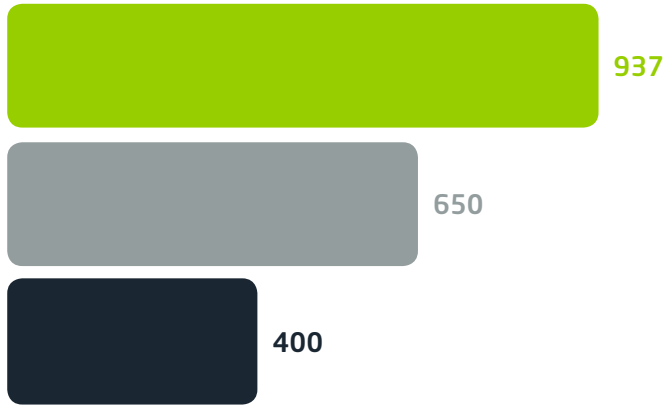
In 2019, the Málaga-Costa del Sol Airport launched a **challenge to its workers in line with Aena's commitment** to the environment. Calling the challenge **"Sustainable AGP",** the airport is trying to launch a constant series of challenges that contribute to lowering its environmental footprint.

To kick off this initiative, the airport handed out a **sustainability quiz** based on the United Nations document "170 Daily Actions to Transform our World", which allows readers to set personal goals. It has also created a **sustainable suggestion box** and launched the first **AGP sustainable award** for the most sustainable office or job.

Non-hazardous waste generated (tn)



Hazardous waste generated (tn)



Partnership agreements

Waste management requires the **collaboration of authorised entities** which develop specific management systems according to the type of waste. These entities are in charge of collecting and later treating each type of waste.

To this end, Aena has reached **partnership agreements with Ecoembes, Ecovidrio and ERP** to guarantee that our waste is appropriately managed. Another entity we partner with is the Trinijove Foundation, which collects and sorts waste that can be valorised from Barcelona-El Prat Airport.

Communication with surrounding communities

Being transparent and conveying everything we do to improve our environment contributes to raising people's awareness so that together we can all make a greater contribution.

Environmental tours

At Aena, we want to share with you all the ways we undertake environmental management in our airport facilities by implementing a range of initiatives. Plus, we share our commitment to the natural environment with visitors in an effort to boost their interest in and concern for the environment.

For years now, we have **conducted guided tour programmes** of our airport facilities for groups ranging from school children to university students or retired persons.

This initiative is extremely useful in raising airport **users' awareness** by offering them the chance to get an insider's view of how the airport works and the importance of the environmental management we apply in our facilities in order to promote care of and respect for the environment. This helps our visitors understand and acknowledge the need to respect the environment, the measures we carry out at Aena to do so and the role of facilities users in contributing to their conservation and proper management.

The visits we receive are very popular among the public, with a **rising demand in different airports in the network every year.** These visits discuss aspects related to environmental performance, explain the mechanisms used to sort and recycle waste and outline the fauna control services that we use, among other environmental actions.

Environmental awareness

With the goal of raising users' awareness, we distribute posters with messages on efficient resource use and environmental protection, which we place in strategic spots in our airports.

The messages we seek to convey encompass issues related to saving water and energy, preserving air quality, waste management and protecting diversity.

Volunteers at JT Barcelona-El Prat Airport

In 2019, JT Barcelona-El Prat Airport, in partnership with the Foundation for the Rehabilitation and Conservation of Marine Animals (CRAM), held a series of **volunteer sessions within "Give and Gain" week,** also known as Global Corporate Volunteering week.

Airport employees were able to participate in a theoretical class on the most common cetacean species in the Mediterranean, as well as a practical session when they simulated rescuing a beached dolphin. Likewise, several workers participated in releasing 5 tortoises that CRAM had recovered into their natural habitat.

World Environment Day in Aena airports

World Environment Day, established by the United Nations, is held every 5 June, and every year the Aena airport network tries to celebrate this day along with its passengers and workers by launching different initiatives:

Adolfo Suárez Madrid-Barajas Airport holds a range of activities such as the exhibition open to the public on "The Airport Cares for the Environment", employee participation in a guided tour of the airport's environmental facilities, planting a landscaped zone with species that consume little water and a photograph contest called "The Air Quality in your Household Environment".

César Manrique-Lanzarote Airport held a tribute to César Manrique in conjunction with the association that bears his name, in addition to exhibiting sculptures made with waste collected in natural spaces and holding awareness-raising campaigns on the use of plastic and rock looting on the island. Likewise, environmental awareness workshops, games and activities were also held at the airport.

Gran Canaria Airport also wanted to contribute to environmental dissemination and awareness that day by offering talks on Aena's environmental policy and waste treatment at the airport.

Dialogue and transparency

1,089

requests for environmental information

Environmental requests attended and responded to in 2019.

5,988

environmental complaints

Attended and responded to 2019, 99.7% referring to noise.

Of the 5,972 complaints about noise received, 88% cited Adolfo Suárez Madrid-Barajas and Barcelona-El Prat Airports, and many of them came from the same complainant.

Therefore, we focus much of our effort on **managing and minimising the acoustic** impact by trying to improve and expand our programmes to measure, control and minimise the noise in the airport vicinity.

At Aena, we are totally open to the opinions of our facility users. Furthermore, we transform their complaints and claims into useful information to improve our services and meet their needs.

Specifically, we provide **access to effective communication** with the company by making the environmental attention channels available to users; we use these to centralise and respond to information requests, complaints and suggestions related to the environment quickly and efficiently.

Likewise, we also have a direct online channel to facilitate **two-way communication** where any user can easily send inquiries just by accessing our corporate website.

Our environmental attention channels

At Aena, we have channels that contribute to improving communication on environmental issues:

WebTrak

Website link

Noise Insulation Plan Management Office (exclusively for consultations regarding soundproofing of homes)

915 903 170
oficina.paa@ineco.com
Website link

Aena's Environmental Care Office

Website link

OFIMA (Environmental Office of Adolfo Suárez-Madrid Barajas Airport)

913 936 710
OFIMA@aena.es
Website link

SAIM (Environmental Office of Aeropuerto de Barcelona-El Prat)

932 971 203
saimbcn@aena.es
Website link