

Environmental impact reduction beyond noise: InsightFull and Carbon Emission

InsightFull and Carbon Emission

Dirección: Planificación Aeroportuaria y Control Regulatorio
División: Gestión Ambiental



General overview of Aena SME

We manage sustainable airports so you can be close to what's most important to you.



AENA AT A GLANCE

46

airports

2

heliports

Aena is a state-owned trading company that manages airports and heliports of general interest in Spain.

Through its subsidiary Aena International, Aena is also involved in the management of

34

airports in different countries



* In August 2022, Aena has been awarded the management of 11 airports in Brazil. The takeover of these infrastructures is expected to take place by end-2023.



AENA AT A GLANCE



341.9m

passengers in 2022

—

243.6m

Spain

13.1m

UK

13.9m

Brazil

14.6m

Colombia

50.8m

Mexico

5.9m

Jamaica

In Spain



2,216,327

operations
in 2022



1,000,356

tonnes of cargo
in 2022



86

connected
countries



MAD and BCN

among the **top ten**
airports in the EU by
passenger traffic.



150

commercial
airlines



348

destinations

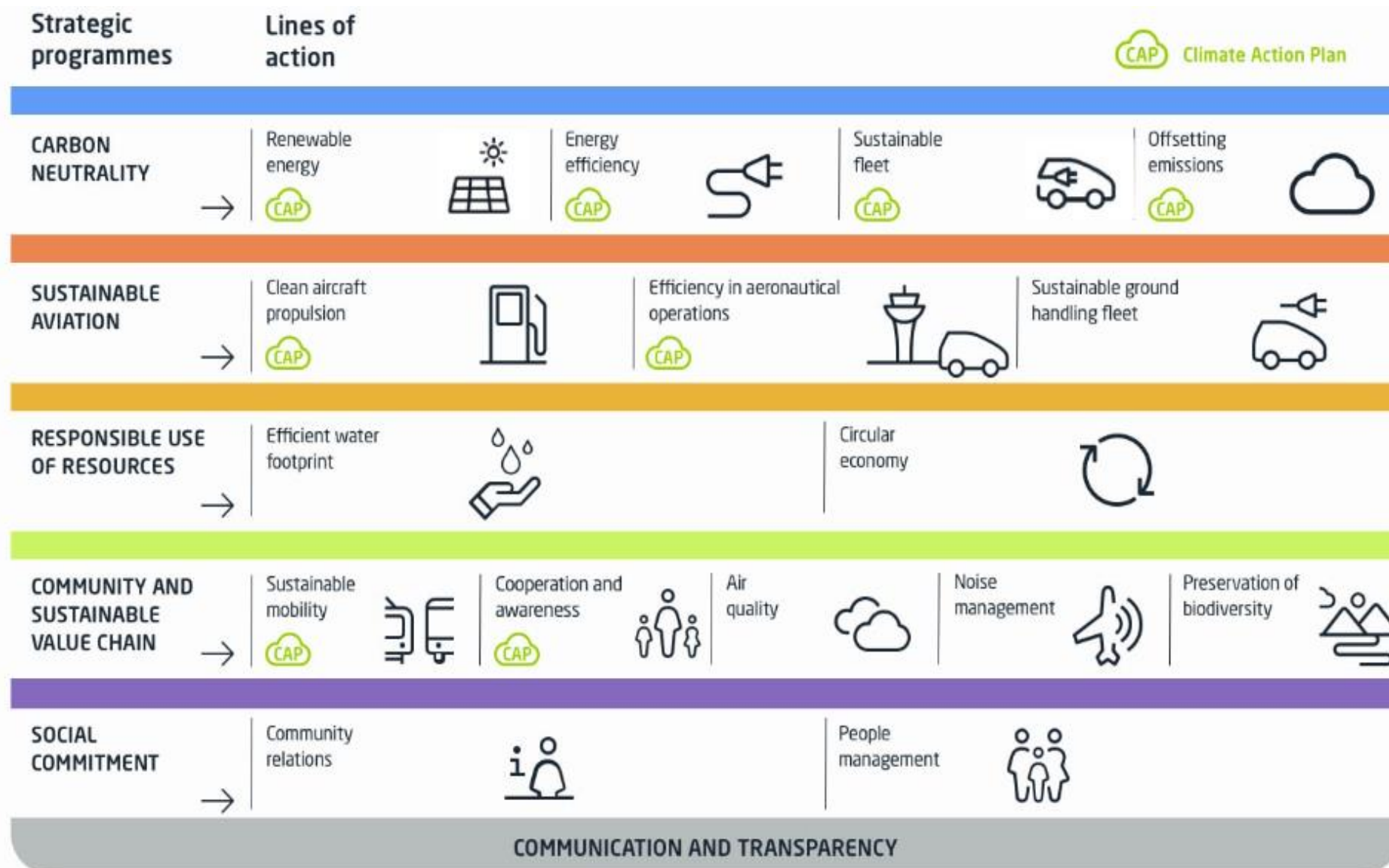


143

long-haul
routes



Aena Sustainability Strategy Structure



Thanks to the drafting of the Sustainability Strategy, Aena is taking a further step in its environmental and social commitment, strengthening its leading role in achieving sustainable air transport

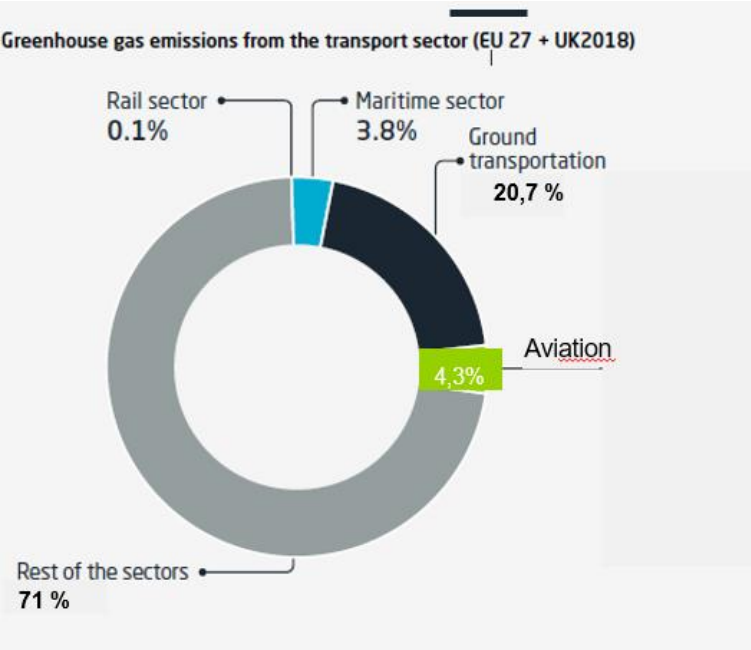
Aena's Climate Action Plan (CAP) & Carbon Emissions

We are at a crucial moment for successfully meeting the greatest environmental challenge of our time: the fight against climate change



CLIMATE CHANGE: GLOBAL CONTEXT

- **GLOBAL:** The aviation sector contribute between **2-3% of CO₂ emissions**
- **EUROPE:** The aviation sector contribute about of **4% of EU CO₂**



Source: European Environment Agency (Greenhouse Gas Inventory 2019)



**What is the role
of Aena/ Airport
Operator?**



WICH EMISSIONS CAN OCCUR AT AN AIRPORT?

Emissions from the purchase of electricity and heating/cooling

SCOPE 2

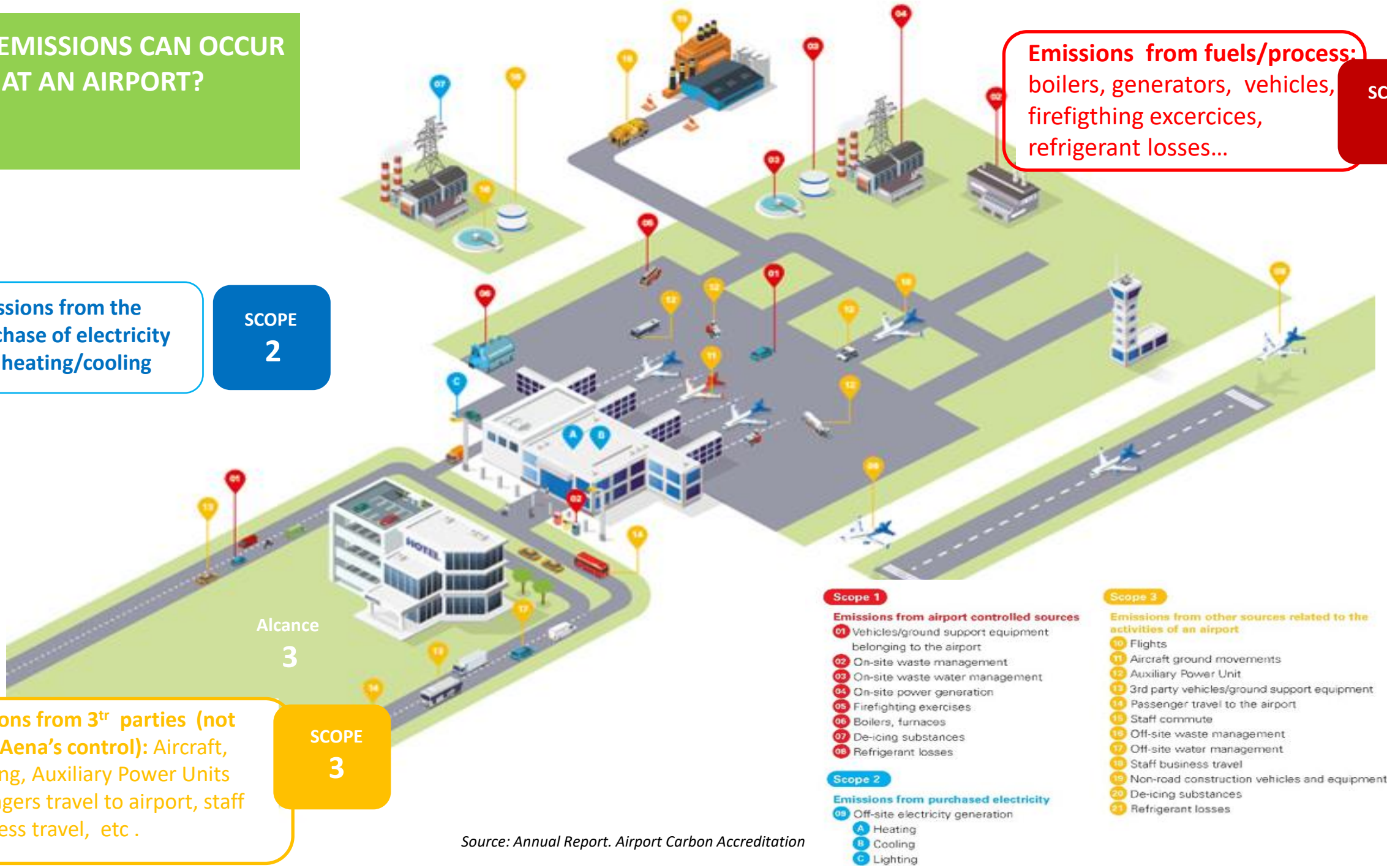
Emissions from fuels/process: boilers, generators, vehicles, firefighting excercises, refrigerant losses...

SCOPE 1

Emissions from 3^{tr} parties (not under Aena's control): Aircraft, Handling, Auxiliary Power Units passengers travel to airport, staff bussiness travel, etc .

SCOPE 3

Alcance 3



Scope 1

Emissions from airport controlled sources

- 01 Vehicles/ground support equipment belonging to the airport
- 02 On-site waste management
- 03 On-site waste water management
- 04 On-site power generation
- 05 Firefighting exercises
- 06 Boilers, furnaces
- 07 De-icing substances
- 08 Refrigerant losses

Scope 2

Emissions from purchased electricity

- 09 Off-site electricity generation
- A Heating
- B Cooling
- C Lighting

Scope 3

Emissions from other sources related to the activities of an airport

- 10 Flights
- 11 Aircraft ground movements
- 12 Auxiliary Power Unit
- 13 3rd party vehicles/ground support equipment
- 14 Passenger travel to the airport
- 15 Staff commute
- 16 Off-site waste management
- 17 Off-site water management
- 18 Staff business travel
- 19 Non-road construction vehicles and equipment
- 20 De-icing substances
- 21 Refrigerant losses

Typical distribution at Aena

SCOPE 1 + SCOPE 2

**DIRECT AND INDIRECT EMISSIONS
UNDER AENA CONTROL**

<5% of the emissions are produced directly or indirectly by Aena/ airport operator

SCOPE 3

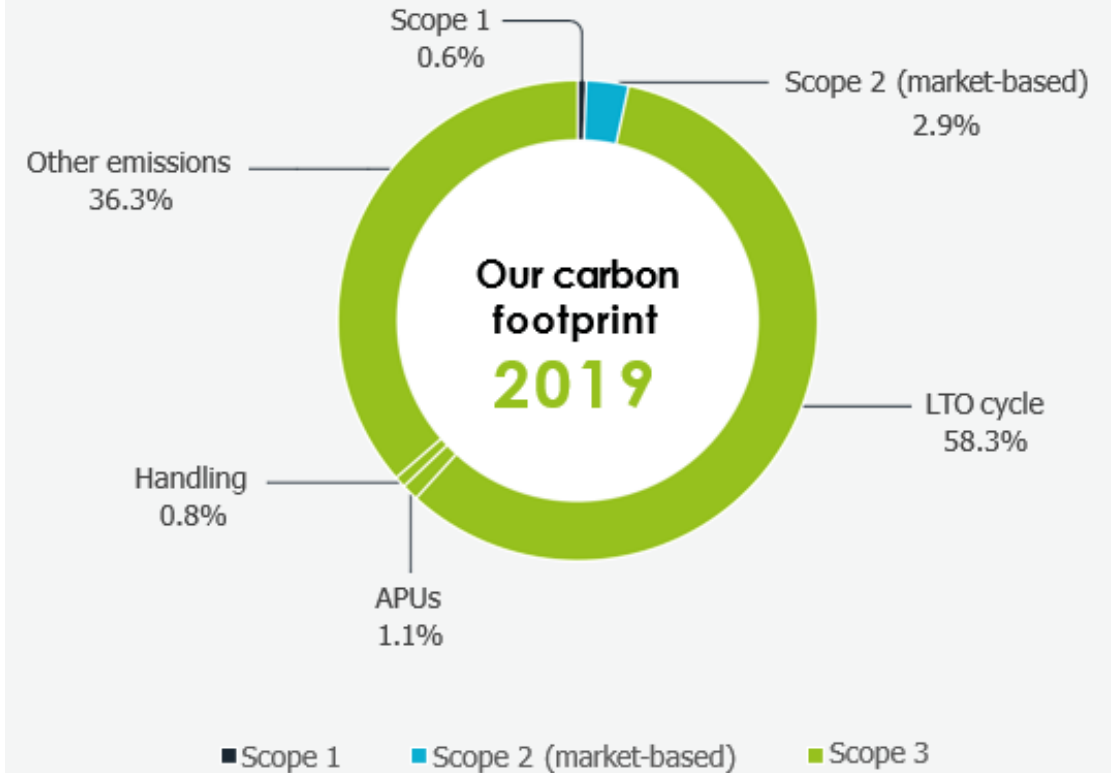
INDIRECT / THIRD PARTY EMISSIONS

>95% of emissions are produced by aircrafts, APUs, Ground Handling and other sources that are not under Aena's control

Emissions



Emissions contribution for 2019



Our Strategy

Aena is committed to the sustainable recovery of the sector based on efficiency, innovative solutions and collaboration with third parties



TARGETS, DURATION AND SCOPE OF THE CLIMATE ACTION PLAN (CAP)

LONG TERM VISION



Definition of objectives and initiatives with a 2030 scope, laying the foundations to achieve Net Zero Carbon by 2040, for its integration into successive Aena Strategic Plans

GREATER SCOPE



Promote improvements in sustainability in the air transport sector, developing initiatives with an impact beyond its own operations

ROADMAP



Annual objectives and breakdown of programs, lines of action, initiatives and projects, and their contribution to the achievement of the objectives



BASE YEAR
OR STARTING
POINT



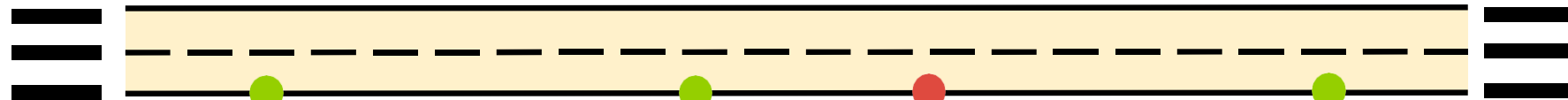
CARBON NEUTRAL

AIRPORTS  **2026**

5 airports ACA
level 3 (NEUTRAL)
+ and 2 level



**NET ZERO
CARBON**
 **2040**



2019

2026

2030

2040

Possible revision of
the CAP objectives

Finalization of
CAP

Emissions



KEY FACTS OF THE CLIMATE ACTION PLAN

Emissions



The Climate Action Plan will enable in **2026 to achieve carbon neutrality** and, laying the foundations to achieve Net Zero Carbon by 2040, will enable **a 94% reduction in emissions per passenger associated with Aena's own operations by 2030**



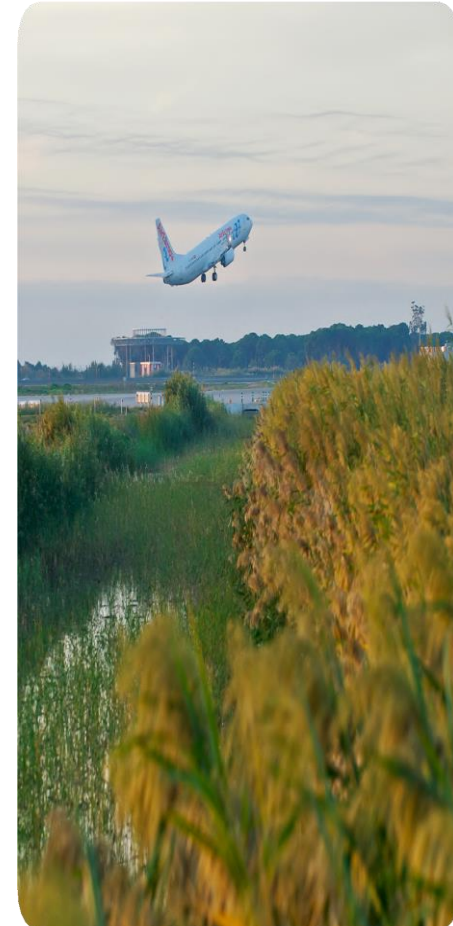
Aena will act as a driving force in the sector, promoting the introduction of **sustainable ground handling vehicles and equipment by 2030** and will drive additional reductions associated with airlines



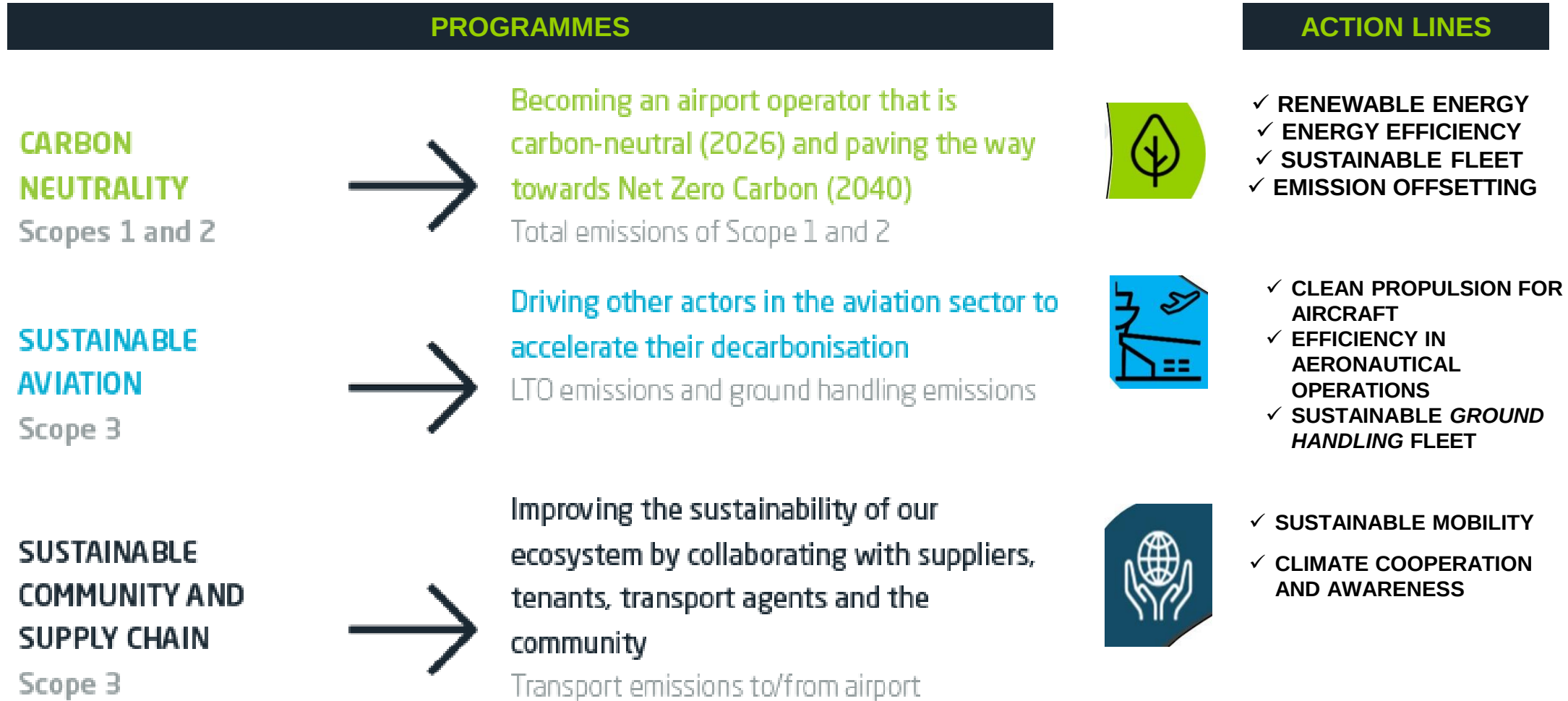
The plan involves investments of close to € 550M in the 2021-2030 period and includes internal **mechanisms for monitoring to ensure the development of the initiatives** (e.g. Specific Commission, Operational Working Group)



The Plan complies with the requirements of the **Task Force on Climate-related Financial Disclosures (TCFD)** and the **Sustainability Accounting Standards Board (SASB)**, including information related to corporate governance, strategy, risk and opportunity management, metrics and their evolution.



AENA's CLIMATE ACTION PLAN: STRATEGIC PROGRAMMES



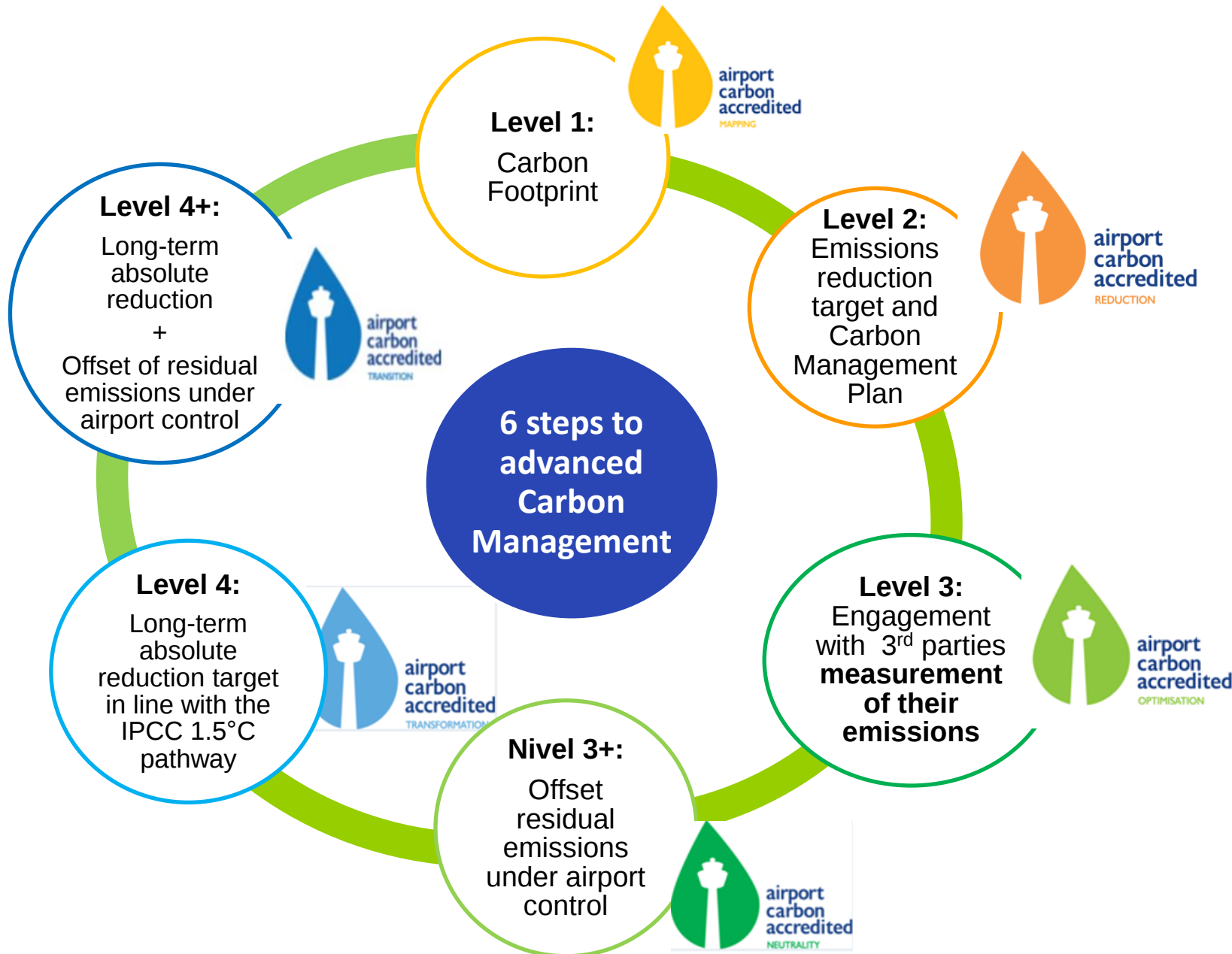
CLIMATE ACTION PLAN (CAP): MAIN INITIATIVES

- ✓ **Energy efficiency** actions at airport facilities
- ✓ Construction of renewable **energy facilities for self-consumption**.
- ✓ **Purchase of 100% renewable energy**, with guarantee of origin in all airports
- ✓ **Electric charging points** for vehicles.
- ✓ Implementation of **collaborative measures**.
- ✓ **Airport Carbon Accreditation Program**
- ✓ **Efficiency in aeronautical operations**
- ✓ **Ground Handling Fleet** emissions reduction plan.
- ✓ Intermodality and **sustainable mobility**: Employee Mobility Plans, Airport Mobility Comissions,etc

Emissions



Airport Carbon Accreditation



AENA's TARGET 2026

Level 3+ : 5 airports

Nivel 4+ : 2 airports (MAD y BCN)

It is essential to measure and understand Scope 3 emissions

CARBON EMISSIONS - ENVIROSUITE

WHY?

- ✓ Know the environmental impact of the airport and carry out a detailed Greenhouse Gas Inventory
- ✓ Possibility of obtaining detailed emissions data from the LTO cycle:
 - More accurate reports using real radar data for LTO
 - Increasing the knowledge of the main contributors
 - Simulating improvements

- ✓ Airport Carbon Accreditation Program/ improve our carbon footprint accreditation
- ✓ Provide information to our stakeholders
- ✓ Possibility to evaluate future emissions and improvement actions
- ✓ Be able to simulate different scenarios and evaluate the effectiveness of emission reduction measures: e.g. use of biofuel, reduction of taxi time...

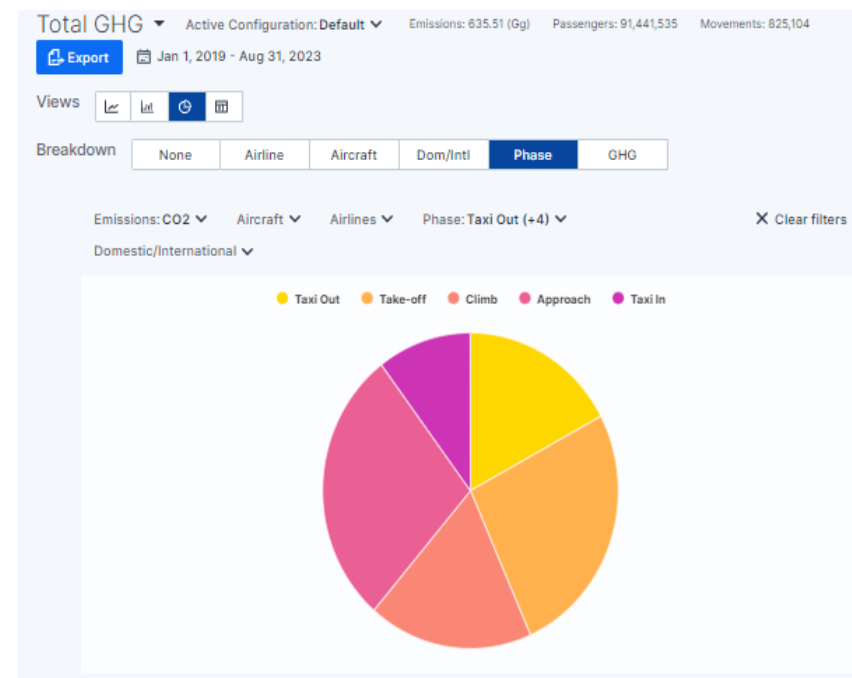
WHERE?

Three main Aena airports:

- Madrid,
- Barcelona
- Palma

>70% Aena Spain emissions

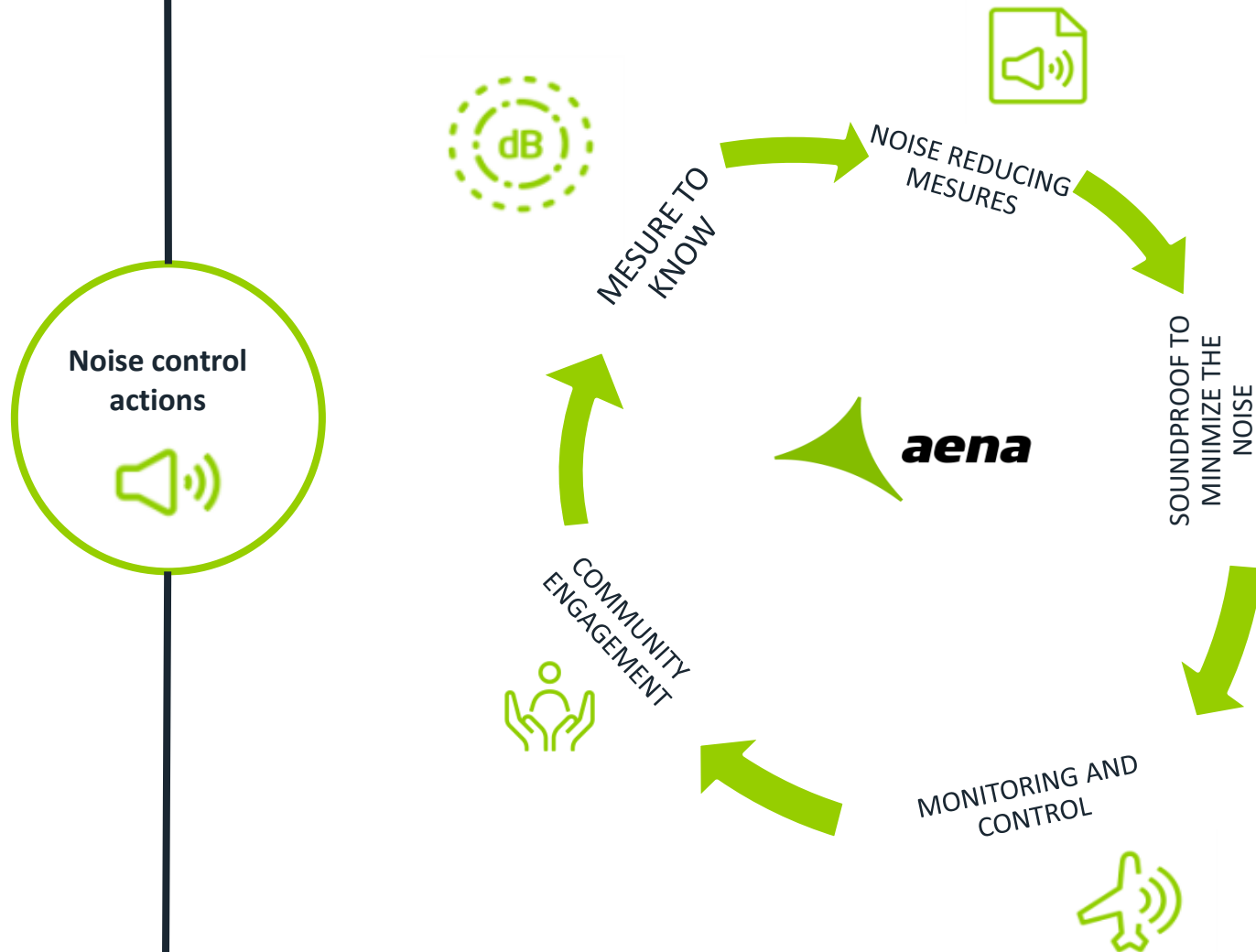
Emissions



**What actions are currently
carried out to manage noise at
Aena?**



NOISE CONTROL ACTIONS

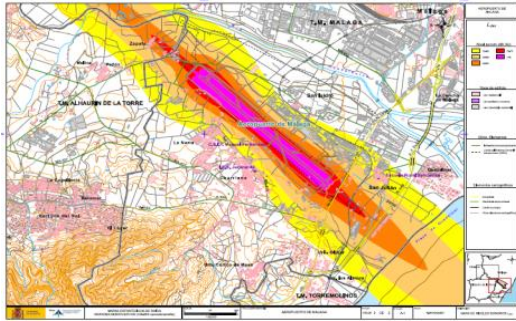


Mesure to know

Mesure to know



STRATEGIC NOISE MAPS (SNM)



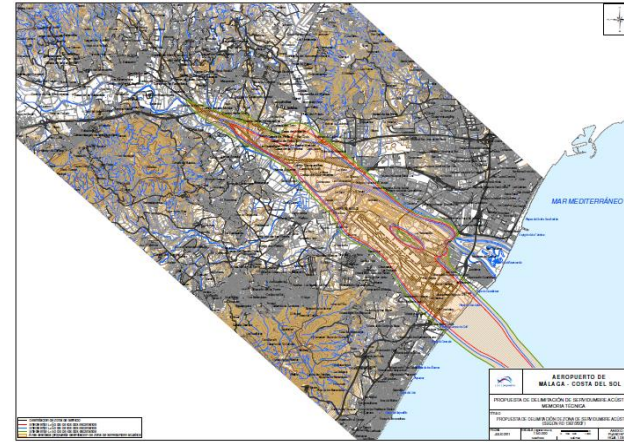
- ✓ Strategic Noise Maps (SNM)
- ✓ Noise Action Plan (NAP)

Lden 55 dB
Ln 50 dB

Current
situation

Every 5 years

ACUSTICS EASEMENT



- ✓ Acoustic Easement (AE): Land Use Plan
- ✓ Noise Action Plan: Include Noise Insulation Schemes

Ld 60dB / Le 60dB
Ln 50 dB

Current and future
situation

Indefinite term (review with infrastructure changes)

Mesure to know

Aeropuerto	MER	PSA
Alicante-Elx	Fase I, II, III y IV	Approved
A.S. Madrid-Barajas	Fase I, II, III y IV	Approved
Barcelona-El Prat	Fase I, II, III y IV	Approved
Bilbao	Fase I, III y IV	Approved y reviewed
Gran Canaria	Fase I, II, III y IV	Approved
Ibiza	Fase II, III y IV	Approved
Lanzarote	Fase III y IV	Approved
Málaga-Costa del Sol	Fase I, II, III y IV	Processing
Palma de Mallorca	Fase I, II, III y IV	Approved and under review
Sevilla	Fase II y IV	Approved y reviewed
Tenerife Norte	Fase I, II, III y IV	Approved
Tenerife Sur	Fase I, II, III y IV	Approved
Valencia	Fase I, II, III y IV	Approved
Fuerteventura	-----	Approved

Mesure to know



Noise reduction measures

NOISE ACTIONS PLANS: BALANCED APPROACH CONCEPT

Plan designed to manage noise issues and effects (SNM + AE) according with the **Balanced Approach concept** (adopted by the ICAO Assembly in 2001)

Noise Reducing
Measures



QUIETER PLANES

Reduction of noise
levels at source

- ✓ Acoustic certification limits: chapters OACI.
- ✓ Encourage less noisy aircrafts: Noise rate.

QUIETER PROCEDURES

Noise abatement
operational
procedures

- ✓ Procedures CDA .
- ✓ Preferential use of configurations and tracks.
- ✓ Paths optimization (RNAV, PBN).

ACCOUSTIC EASEMENT

Land use plans

- ✓ Avoid new developments close to airports

OPERATING RESTRICTIONS

Aircraft operating
restrictions

- ✓ Restrictions marginally compliant aircrafts.
- ✓ Restrictions to specific flights or aircrafts.

Noise reduction measures

NOISE ACTIONS PLANS: OUT OF THE BALANCED APPROACH CONCEPT

Plan designed to manage noise issues and effects (SNM + AE) according with the **Balanced Approach concept** (adopted by the ICAO Assembly in 2001)

Noise Reducing Measures



CORRECTIVE MEASURES

Noise Insulation Schemes

- ✓ Insulation of dwellings and noise-sensitive use buildings.
- ✓ Build new dwellings

MONITORING NOISE

Monitoring and control of noise and flight paths.

- ✓ Noise monitoring system: noise and flight paths control
- ✓ Interactive Noise Map: information channel and complaints.

COMMUNITY ENGAGEMENT

Communication and transparency

- ✓ Meetings and task force with interest groups
- ✓ Interactive Noise Map: information channel and complaints.
- ✓ Insightfull

Soundproofing to minimize noise

Noise Insulation Schemes (NIS)

Soundproofing to
minimize noise



Aena carries out these measures in 22 airports and has more than 28,000 soundproof homes

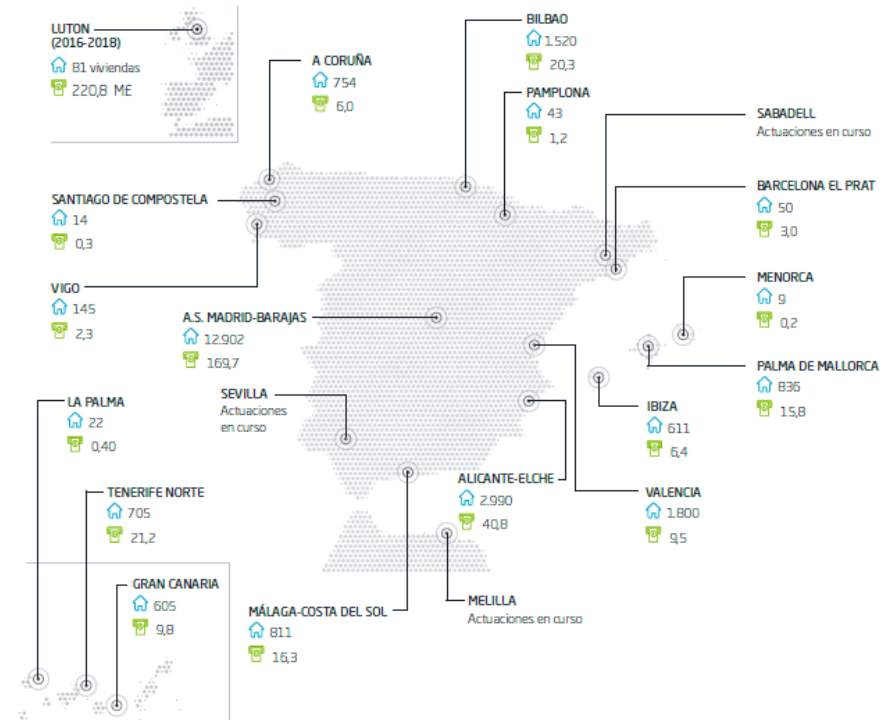
NIM are implemented in those dwellings and noise-sensitive use buildings included within the following noise contours:

Ld 60 dB(A) (7:00-19:00 h)

Le 60 dB(A) (19:00-23:00 h)

Ln 50 dB(A) (23:00-7:00 h).

Aena afford the payment of the **100%** of the actions



Monitoring and control

Noise Monitoring Systems

Aena has been providing acoustic information **since 1985**. The first airports to dispose were A.S. Madrid-Barajas, J.T. Barcelona-El Prat and Palma de Mallorca.

Monitoring and
Control



All of them
with ENAC
accreditation!

Airport	Year	NMT
1. A.S. Madrid-Barajas	80's	22
2. J.T. Barcelona-El Prat	80's	12
3. Palma de Mallorca	80's	9
4. Valencia	2011	8
5. Málaga-C. del Sol	2012	8
6. Alicante -Elche	2012	6
7. Gran Canaria	2018	5
8. Bilbao	2019	5
9. Tenerife Norte	2019	5
10. Tenerife Sur	2019	5
11. Ibiza	2020	5
12. Sevilla	2020	5
13. Lanzarote	2023	6
Fuerteventura	2024	5

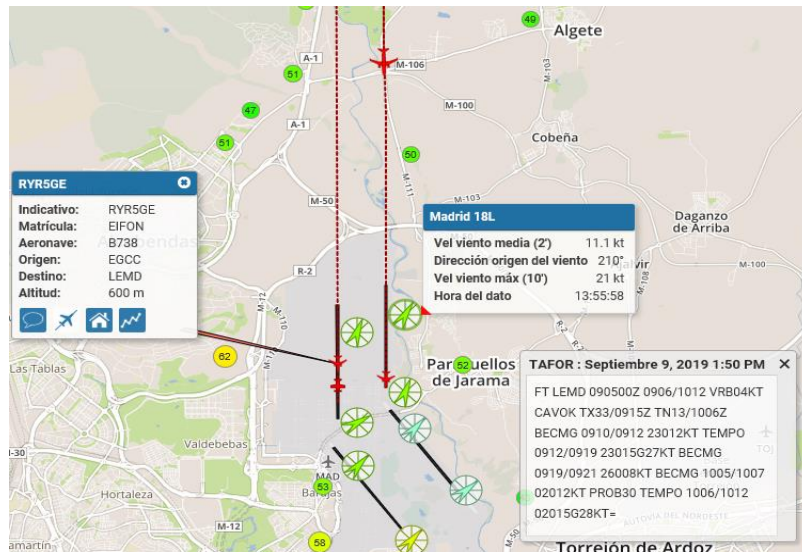
Our goal: Noise Monitoring Systems in all airports with more than **50.000** op/year

Community Engagement

INTERACTIVE NOISE MAPS: WEBTRAK

TAFOR-METAR: In October 2015, Aena expanded the environmental information of the Interactive Noise Maps of the Airports A.S. Madrid-Barajas and J.T. Barcelona-El Prat, incorporating the meteorological data provided by the AEMET (Spanish Meteorological Agency), in accordance with the demand of neighbors and associations around these airports.

Communication and
transparency



Madrid 18L

Vel viento media (2')	11.1 kt
Dirección origen del viento	210°
Vel viento máx (10')	21 kt
Hora del dato	13:55:58

TAFOR : Septiembre 9, 2019 1:50 PM X

FT LEMD 090500Z 0906/1012 VRB04KT
CAVOK TX33/0915Z TN13/1006Z
BECMG 0910/0912 23012KT TEMPO
0912/0919 23015G27KT BECMG
0919/0921 26008KT BECMG 1005/1007
02012KT PROB30 TEMPO 1006/1012
02015G28KT=

Community Engagement

DIALOGUE CHANNELS AND COMMUNITY ENGAGEMENT

Communication and
transparency



MEETING WITH NEIGHBOR GROUPS: Where the concern of neighbors are heard.

NOISE TASK FORCE MEETINGS: Study proposals and initiatives about possible actions aimed at improving noise exposure around the airport.

ENVIRONMENTAL COMMISSIONS OF THE EXPANSIÓN PLANS: Monitoring and control the compliance of the preventive and corrective measures developed during the construction phase.



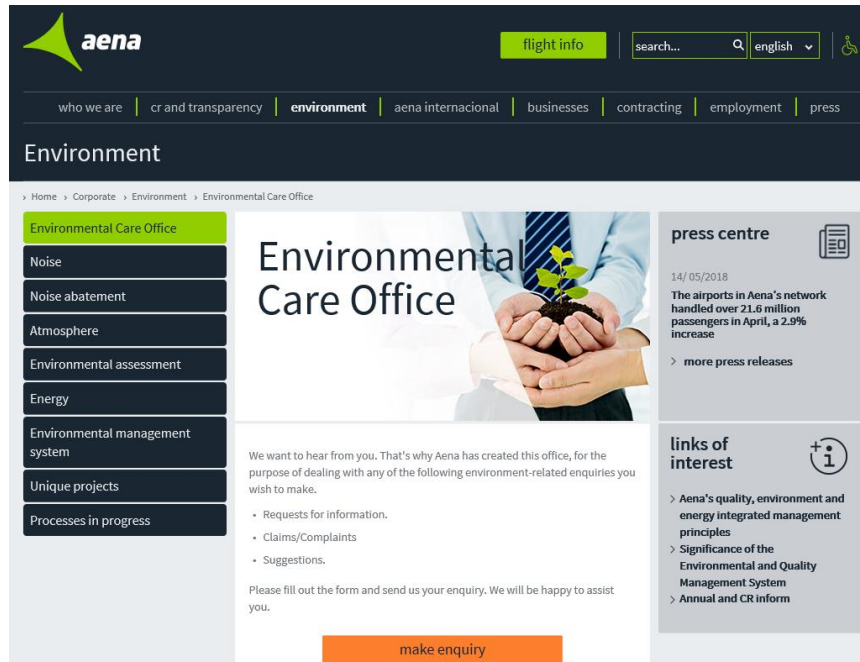
Both commissions are linked and all members are informed promptly about noise data or exceptional situations at the airport



2.5. Community Engagement

COMPLAINTS CHANNELS

Communication and
transparency



FIGURES 2022

13.870 Noise complaints

Madrid-Barajas and Barcelona-El Prat

airports comprise **94,8%** of these
complaints

The number of complaints has increased in recent years after the COVID stop.

Future performances: Insightfull



Future performances: Insightfull

Improving the community engagement

Facilitating the conversation with the communities

Improvement community engagement



Showing specific data for each community



Answering recurring complaints



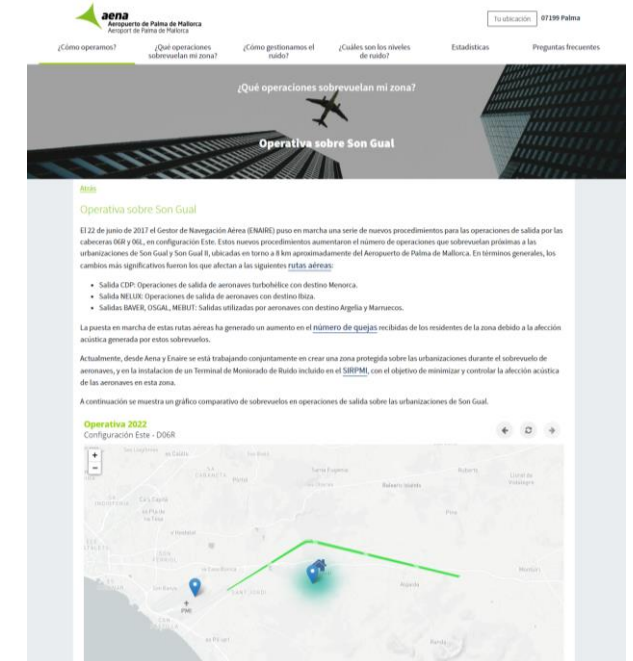
Interactive communication



Global repository for Noise, GHG



Bringing total environmental management closer to communities



Insightfull

Improvement of acoustic information and communication with the environment

Improvement of
acoustic
information



[Atrás](#)

¿Qué operativa me afecta?

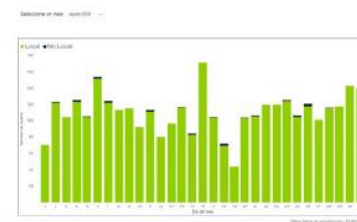
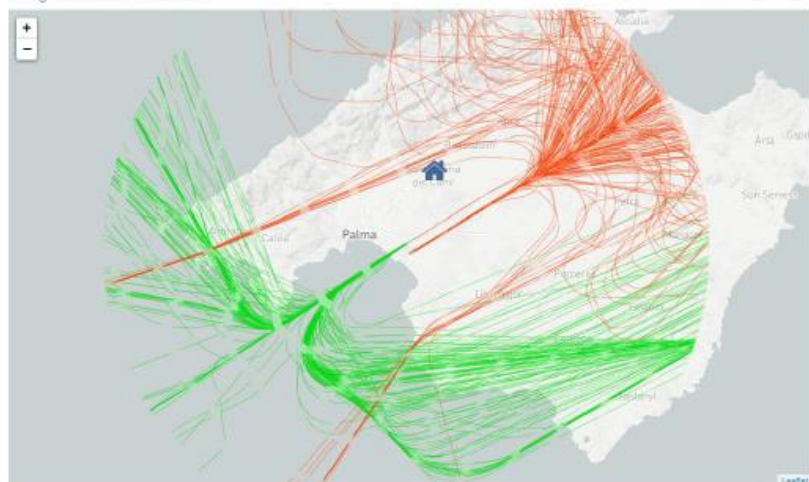
El Aeropuerto de Palma de Mallorca cuenta con dos operativas diferentes, Configuración Oeste (preferente) y Configuración Este. Se mantendrá la configuración preferente salvo por causas meteorológicas o razones de seguridad.

A continuación se muestra un mapa interactivo con las trayectorias descritas por las aeronaves en las diferentes configuraciones.

Sitúe el icono casa en el mapa a través de "tu ubicación".

Configuración preferente

Configuración Oeste - D24R / A24L



Nº de sobrevuelos diarios



Nº de sobrevuelos por altitud

Thank you