ICAO WEBINAR ON GREEN AIRPORTS

African Airports Road to Net Zero

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Dakar, Sénégal

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ACI Africa Presentation

About ACI-Africa

ACI Africa is the international association of African airports.

It is the voice of African Airports and has as prime objective to advance the interests of airports and to promote professional excellence in airport management and operations on the African continent.

70 members from 53 African countries, managing more than 260 airports, and 46 business partners.

ACI Africa Environment Regional Committee

ACI Africa continues with its mission under the African Airports Development Program (**AADP**) by providing high quality and affordable training programs and assistance to African airports.

ACI Africa Environment Regional Committee

- ACI Africa Board approved the set-up of the Environment and Sustainability Regional Committee at the ACI Africa Board Online, 17th March 2021 and approved at the Annual General Assembly in October 2021. One of its mandate is to develop Environment and Sustainability working documents on issues affecting the region.
- In line with this mandate the committee, developed an action plan to guide the region on achieving sustainability goals entrenched in its environment sustainability policy.
- African Airports are committed to minimizing impact on our environment and maximizing the effective use of resources. We aim to achieve this by increasing communication and awareness of our efforts in accordance with our policy and fostering responsible environmental behavior with an ultimate goal of ensuring environmental protection and sustainability.

ACI Long Term Carbon Goal

ICAO has adopted, on October 7th, 2022, a Long-Term Aspirational Goal of Net Zero carbon emissions by 2050 for international aviation at the organization's 41st assembly.

"ACI member airports at a global level commit to reach net zero carbon emission by 2050 and urge governments to provide the necessary support in this endeavor"

Montreal, 8 June 2021 Airports Council International (ACI) in collaboration with members

ACI Long Term Carbon Goal

Aviation CO2 Emissions

- Aviation Industry Emissions:
  around 2% of global emissions
- Airports' share of Aviation Emissions:
  approximately 2% of aviation emissions
- **African region traffic:**
  In 2022 **less than 3%** of global traffic
  Forecast +25% in 2027 *(compared to 2019)*

Source : ACI World

ACI Long Term Carbon Goal

The **Paris Agreement's long-term temperature goal** should be **achieved by reducing emissions** to reach **net zero carbon by 2050.**

Net Zero emissions are **based on scientific based targets** and set a trajectory for emissions **reductions for scope 1, 2 and 3 emissions**, and do not allow, in other sectors and organizations, to use offsets to achieve a reduction.

To achieve Net Zero Carbon, ***airports*** reduce carbon emissions as close to zero as possible and any residual emissions can be addressed by carbon removals.

Carbon neutrality sets out requirements for the **quantification**, **reduction** and **offsetting** of greenhouse gas emissions. So, during a specific period , there has been no net increase in the GHGs.

Tropical Storm Ana in Malawi.
Photo: Malawi Red Cross, January 2022

Source: Aljazeera News -Forest Fires Algeria, Aug 2021

Source: Floods in Zambia January 2022
Disaster Management and Relief Unit

Airport Carbon Accreditation - ACA

The global standard for airport carbon management

OBJECTIVES

- Provide technical guidance for airport carbon management
- Create a framework for public recognition of airports' efforts
- Show industry leadership
- Create a community of airports engaged in climate action

KEY PRINCIPLES

- **Performance**: emissions reductions to be demonstrated as of Level 2
- **Reductions before offsetting**
- **Continuous improvement**: yearly/three-yearly accreditation renewals
- **Double assessment** of accreditation applications (by programme Administrator WSP and independent third-party verifiers)

Airport Carbon Accreditation - ACA

airport carbon accreditation

Which emissions can occur at an airport?

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

Source : ACI EUROPE AIRPORT CARBON ACCREDITATION

Airport Carbon Accreditation - ACA

airport carbon accredited TRANSITION

airport carbon accredited TRANSFORMATION

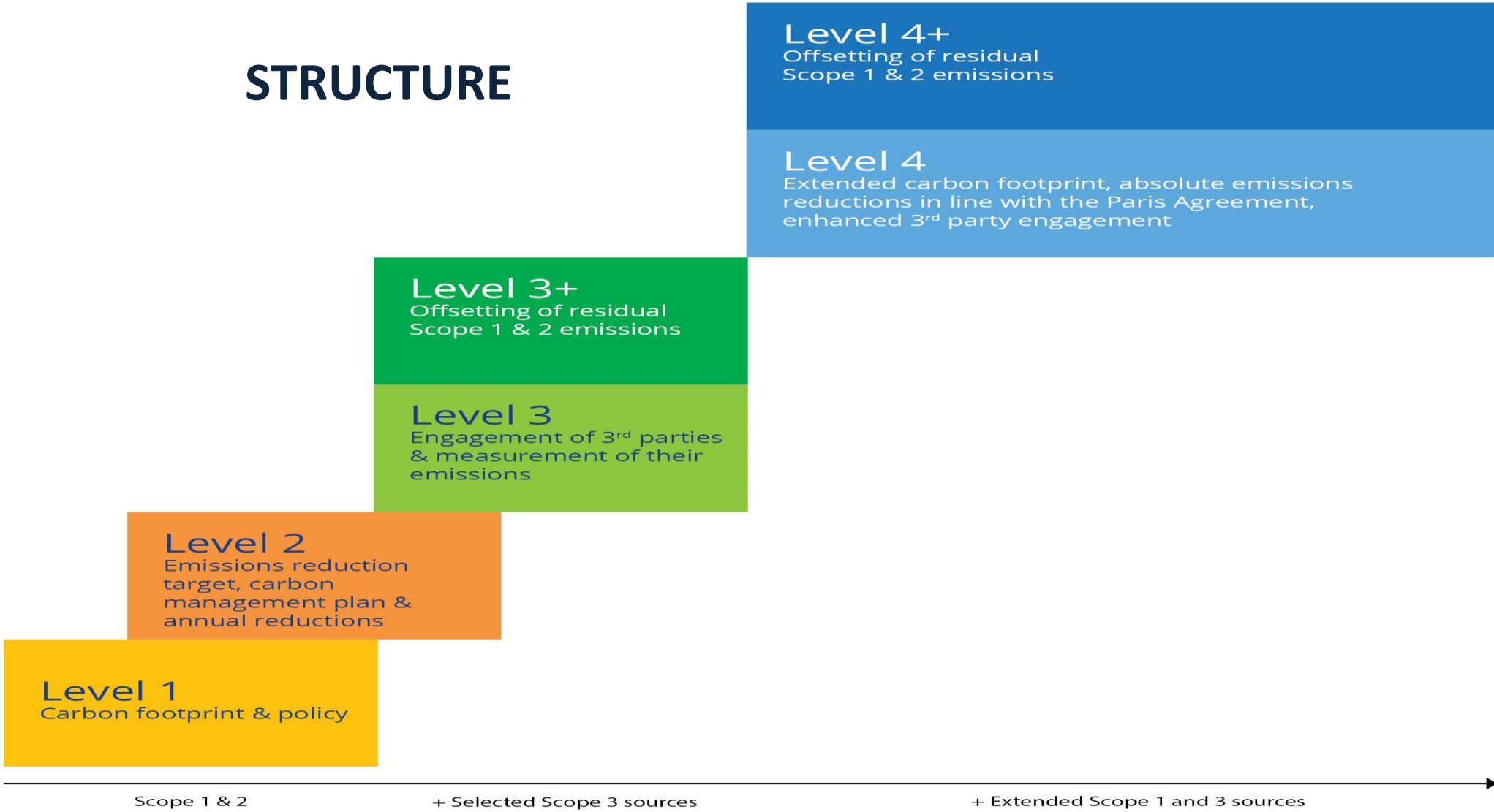
airport carbon accredited NEUTRALITY

airport carbon accredited OPTIMISATION

airport carbon accredited REDUCTION

airport carbon accredited MAPPING

STRUCTURE



Airport Carbon Accreditation - ACA

LEVELS 4/4+ (introduced Nov 2020)

airport carbon accredited TRANSFORMATION

- **Absolute long-term emissions reduction targets, aligned with Paris Agreement (IPCC scenarios), with possible inclusion of Scope 3 emissions**
- **Emissions trajectory with interim milestones**
- **Extended carbon footprint (e.g., full flight emissions)**
- **Strengthened stakeholder engagement**

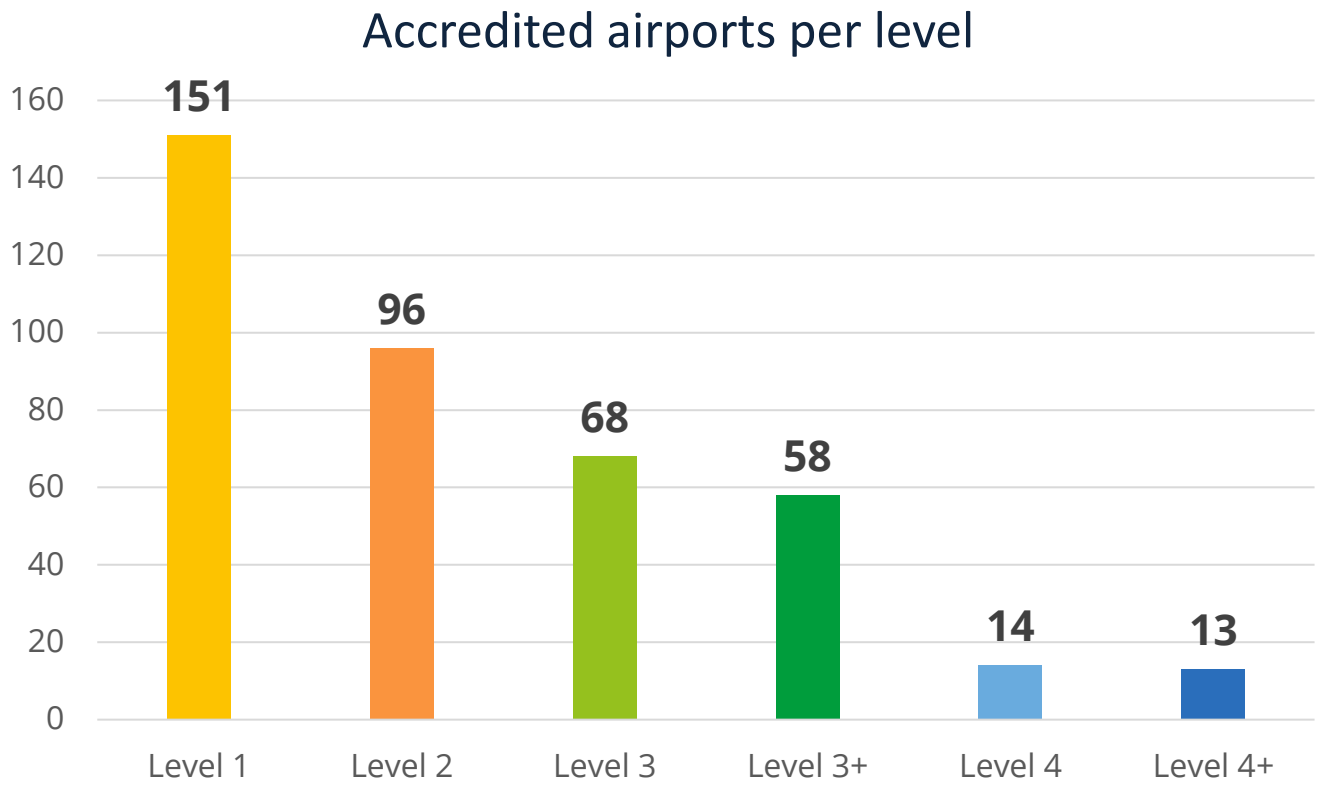
airport carbon accredited TRANSITION

- **All Level 4 requirements**
- **Offsetting of residual emissions**

Source : ACI EUROPE AIRPORT CARBON ACCREDITATION

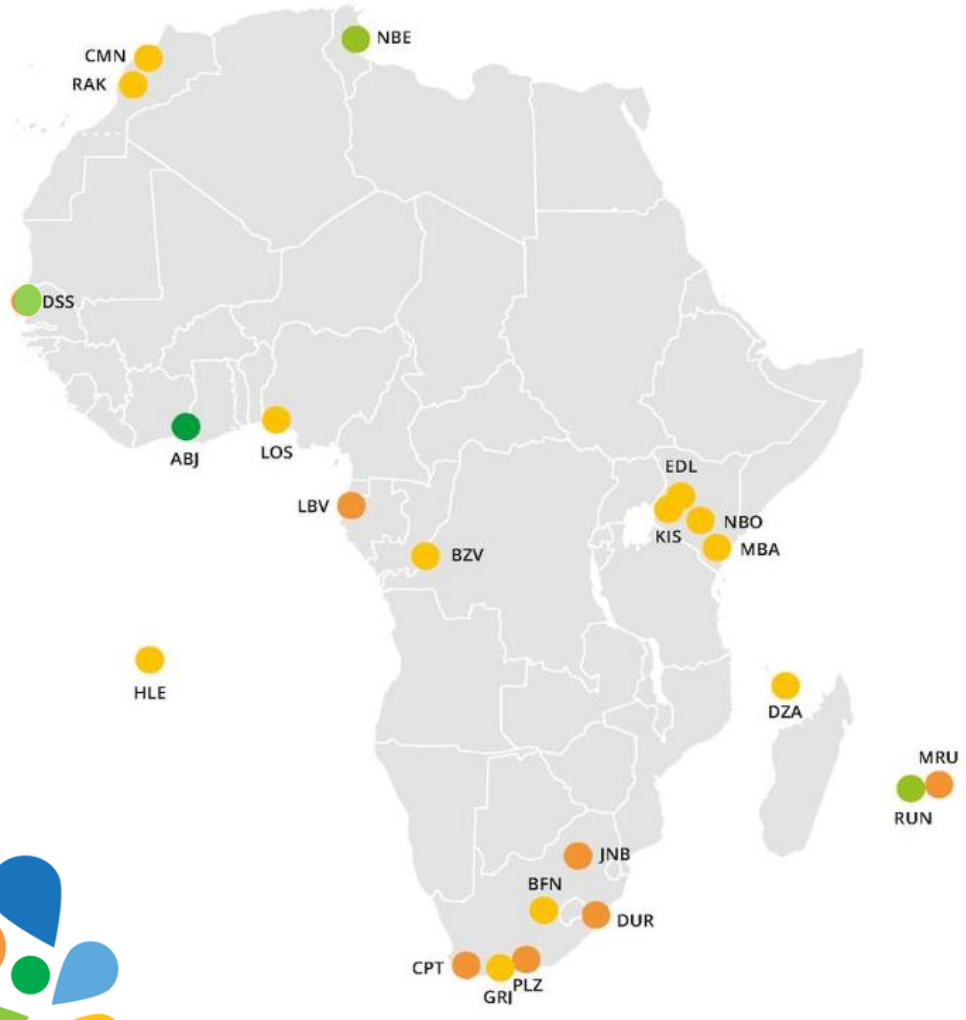
Airport Carbon Accreditation - ACA

400 accredited airports globally



Source : ACI EUROPE AIRPORT CARBON ACCREDITATION

Airport Carbon Accreditation - ACA



23 accredited airports in Africa

- **10** at **Level 1**

- **9** at **Level 2**

- **3** at **Level 3**

- **1** at **Level 3+**

Airport Carbon Accreditation - ACA

-549,643

tonnes of CO2

were saved by accredited airports between May 2021 and May 2022.

airport carbon accreditation

...which is equal to the CO2 emitted by the production of more than **81 million cotton t-shirts**.

Source : ACI EUROPE AIRPORT CARBON ACCREDITATION

Measures for Emissions Reduction

Grid Decarbonisation	• Decarbonisation of national electrical grid beyond the control of airport operators
Energy Efficiency measures	• Replace lighting and end ventilation systems with new low energy technologies and install smart automatic building management systems
Vehicles fleet decarbonisation	• Replace Airport vehicles and equipments with electric, hybrid, hydrogen, etc
Onsite thermal decarbonisation	• More efficient heating or cooling of Airport buildings using biogas, biomass
Onsite renewables	• Install renewable energy systems (solar, wind, etc)
Negative Emissions Technologies	• Nature based carbon sinks or carbon captures
Carbon offsets	• Compensate residual emissions through different projets

Roadmap for Net Zero Carbon

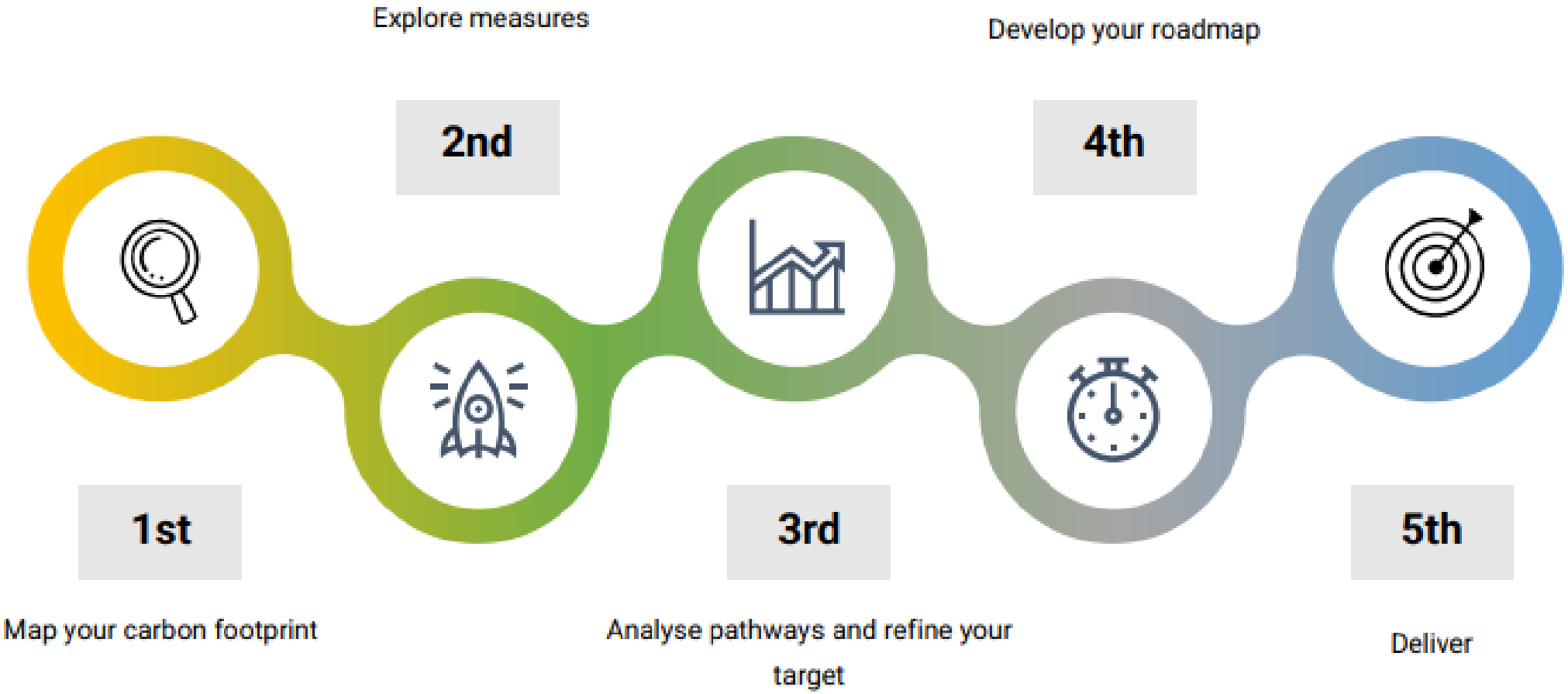
Why do you need a Road Map out to 2050 to achieve NZC?

- Framework for Airport to reduce its emissions
- Project management plan
- Provides guidance

The importance of a road map is that it is an organized strategic methodology that will guide and outline different milestones set at specific times until the year 2050.

- Give you confidence that your target is achievable through
  - Setting emissions reduction targets in line with science
  - Agreeing ambitious and achievable science targets
  - Ensuring they are compatible with wider business strategy
  - Demonstrate feasibility and gain buy in for target or individual emissions reduction
  - Manage and track progress and decision developments
- Check if the airport is on or off track of the set milestones
- Basis for reporting to National bodies and contributing to national policy improvements in same timeline
- Sets goals and objectives including setting KPIs and monitoring
- Gives a long-term framework and plan to all the airport stakeholders.

Roadmap for Net Zero Carbon



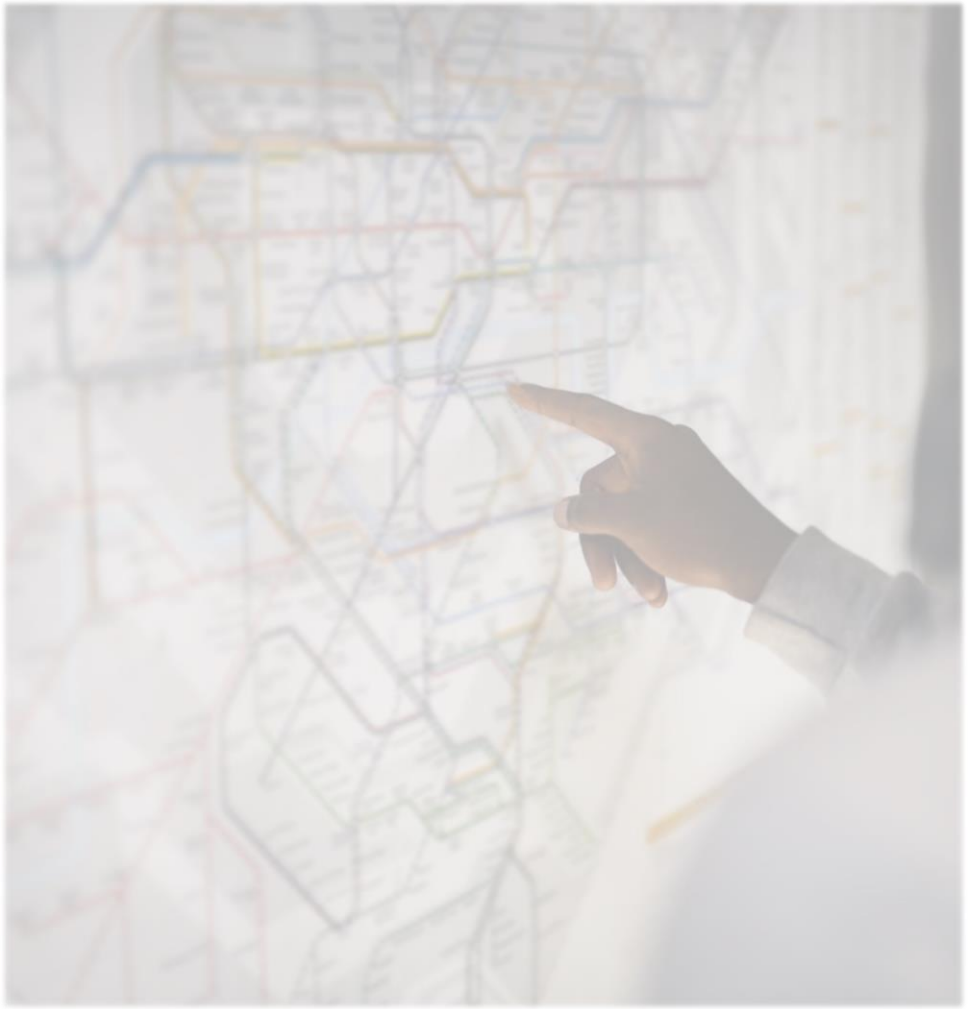
Combine all the elements gathered in the steps 1, 2 and 3 to turn them into an actionable plan

Roadmap for Net Zero Carbon

What do you need for a successful roadmap to net Zero?

- **commitment** from all **airport management;**
- a **Net Zero Carbon Target** (including a trajectory with intermediate targets);
- **emissions-cutting measures** and identified **medium-long term measures.**
- a **periodical (annual) reporting** mechanism.

The effective sustainable management of aviation environmental impacts at an airport requires the engagement and collaboration of ALL core operational stakeholders.



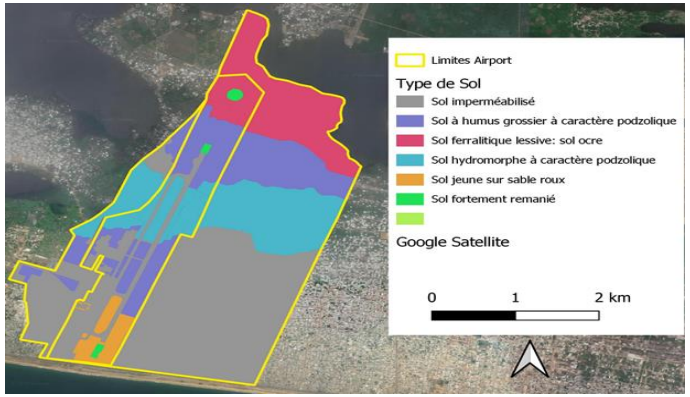
ABIDJAN AIRPORT CLIMATE STRATEGY

Land asset : +1000 hectares
Number of people involved : 2 million passengers per year and 200 employees

Ambitious climate strategy, certified **Airport Carbon Accreditation** : Level 3+ (neutral)

ABIDJAN AIRPORT CLIMATE STRATEGY

Soil.is scenarios validated by AERIA :



Intensify the plant productivity of the "indoor" vegetated system

Valorize bio-waste

Restore and conserve Abou-Abou bay

Create an agro-forestry gardening belt

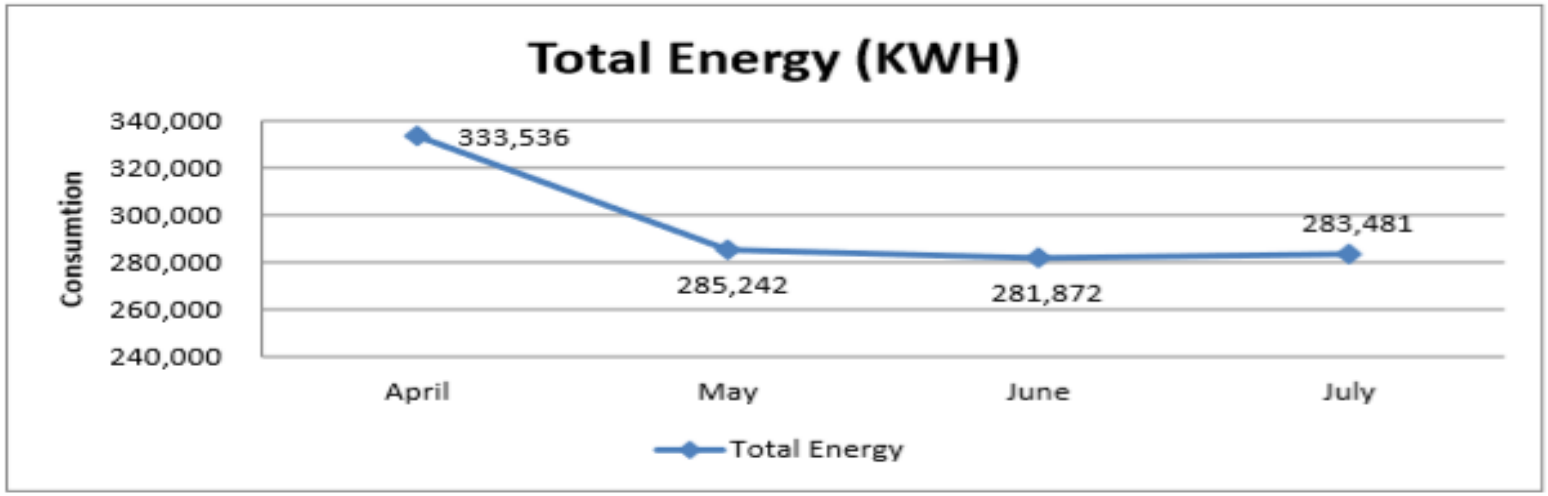
ADVANTAGES OF THE SMART SOILS PROJECT

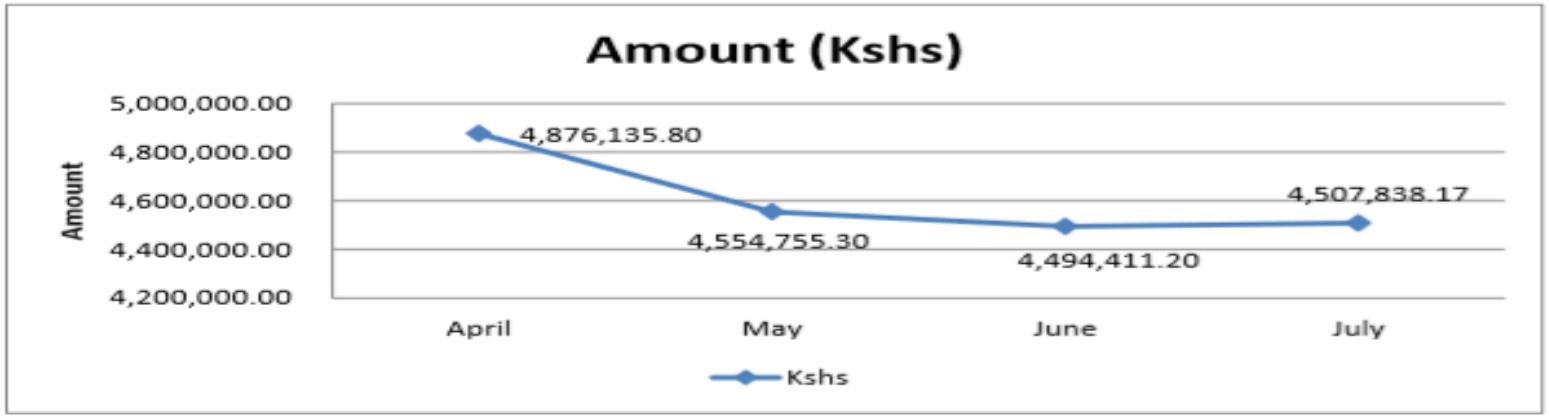
- Securing land through the market gardening belt.
- Improvement of quality of life through landscape management and social impact.
- Economic gain through energy reduction.
- Reduction of erosion and direct and indirect GHG (Greenhouse gas) emissions.
- Increase in the production of plant biomass.
- Ecosystem restoration.

MOMBASA AIRPORT SOLAR AT GATE PROJECT

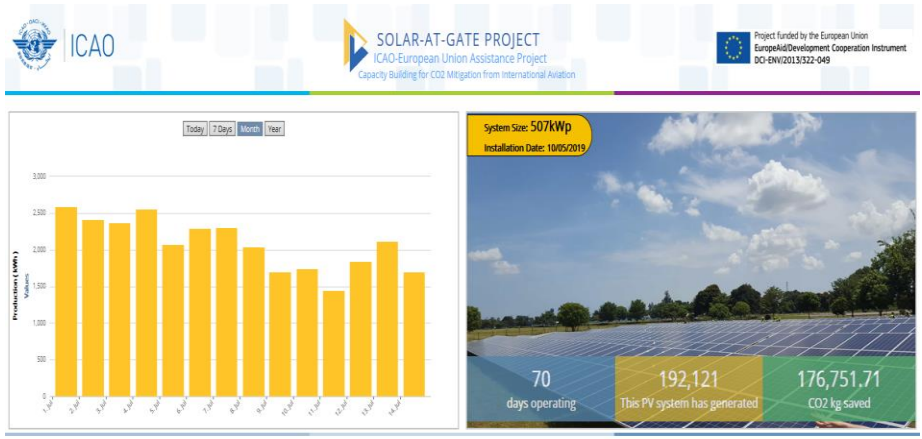
- The solar photovoltaic system of 500kWp is connected to the airport terminal grid.
- This gate electrification equipment allows aircraft serving international flights to switch off their Auxiliary Power Unit (APU) when parked at the gate, and avoid the use of portable diesel-powered GPUs, thus reducing CO2 emissions.
- Project funded by the EU

MOMBASA AIRPORT SOLAR AT GATE PROJECT





The battery storage capacity is of 360kW and is charged directly by solar and supplies the GPU and PCA with 15 minutes **of autonomy.**



This contributes to efficient operations of MBA

The project is also expected to reduce KAA's electricity costs

LA REUNION AIRPORT FACING CLIMATE CHANGE

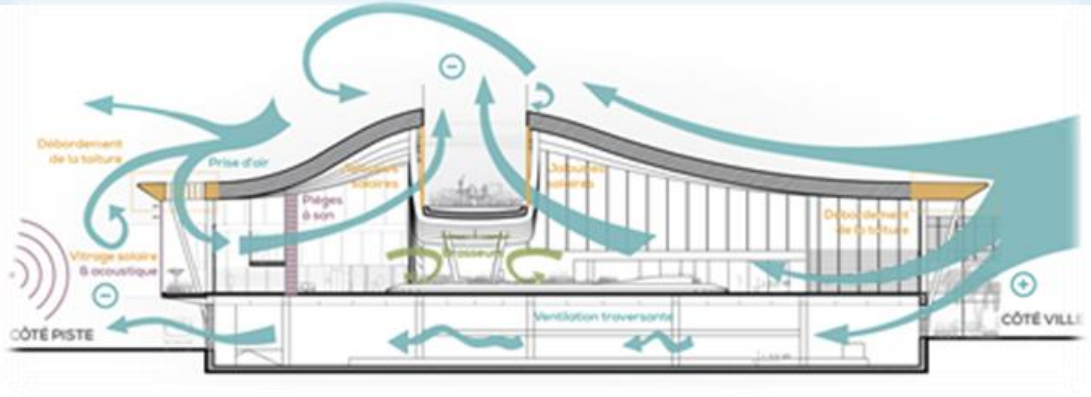
NEW BIOCLIMATIC TERMINAL

Description

- Synthesis of the airport environmental policy since 2013
- Bioclimatic concept
- Based on environmental integration and natural ventilation
- 1st bioclimatic building of this size in a tropical climate

Few figures:

- Capital investment : 76M€
- Surface: 22 000m² building
- Completion in 2024
- Only 7% air-conditioned spaces
- Energy performance ratio →
  - -60% compared to the actual optimized terminal
- 9000 m² of endemic plants



Natural ventilation concept

LA REUNION AIRPORT FACING CLIMATE CHANGE

Context:

- High carbon-based energy usage in Réunion island
- Self-sufficiency energy initiative
- Development of a multi-phase solar investment plan

Phase 1: Terminal rooftop

- Capital investment : 1 M€
- 500kWp - 10% of the terminal electrical consumption
- Completed in March 2020

Phase 2: New parking

- Capital investment : 2,8 M€
- 1,3MWp installed - 25% of the terminal needs
- Completed in June 2021

Phase 3: Cargo terminal

- Capital investment : 0.85 M€
- 35% of the cargo terminal electrical consumption
- Completion expected in 2024

RENEWABLE PROJECTS

SOLAR ENERGY SELF-SUSTAINING

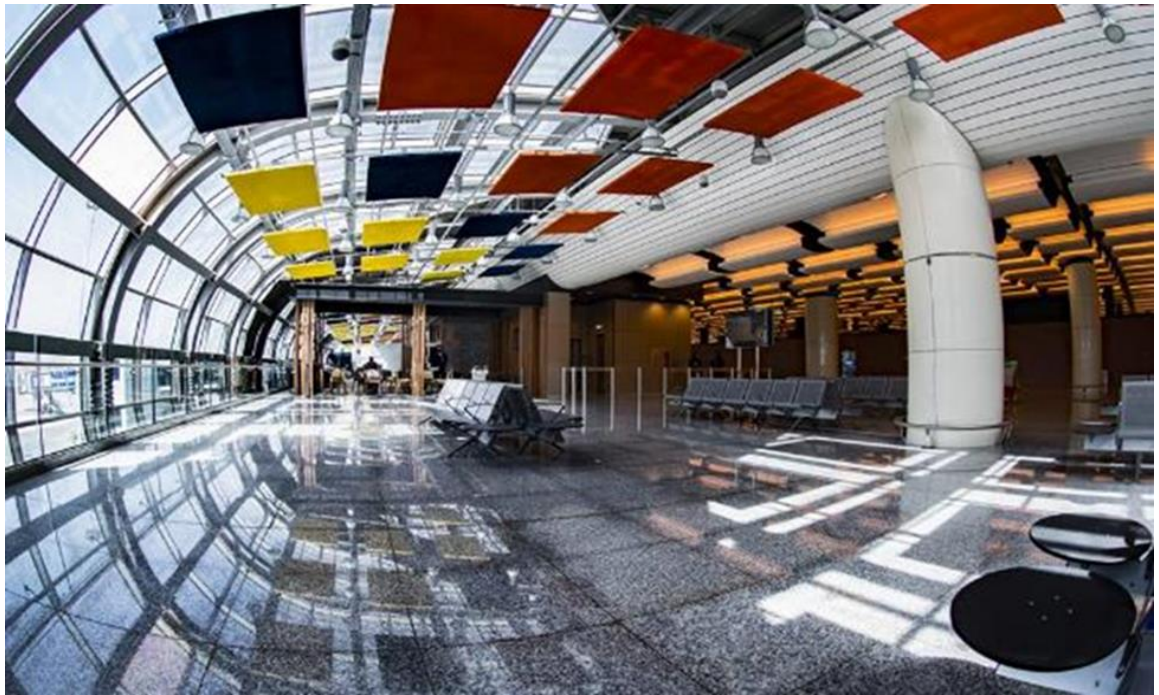
DAKAR BLAISE DIAGNE ENVIRONMENT INITIATIVES

Airside Measures

- Ground handling equipment renovation
- Apron Lights replacement

Landside Measures

- Reinforced Insulation
- Terminal lighting replacement with LED
- Terminal temperature monitoring
- Energy efficiency management with BMS
- Mass transportation for employees
- Hybrid taxis to and from the airport



DAKAR BLAISE DIAGNE ENVIRONMENT INITIATIVES

Currently accredited ACA level 3

- ISO 14001 EMS certified
- Waste recycling
- Water reuse for green spaces
- Stakeholders' engagement
- Environment awareness program (reforestation)
- Cooperation with Marine Protected Area to protect mangroves a powerful nature-based carbon sink
- Stakeholders' Environment Award

Path Forward

ACI Long Term Carbon Goal acknowledges the need to work with governments and other stakeholders, so that airports can have the required support to enable them to reach Net Zero Carbon emissions by 2050

- Decarbonization of the grid will have an extensive contribution to the overall emission reduction
- Establish a concrete mechanism for collaboration between industry regulators and airports
- Airports in the region still require support to catch up to the other regions
- Mentorship programs could boost engagement / pairing up of airports that are showing commitment
- Advocacy is needed at a global and at a regional level
- Coordinated approach is needed to save resources

Questions

Thank You

AÉROPORT DE LA RÉUNION ROLAND GARROS

L A S

AERIA

Aéroport International Félix Houphouët Boigny d'Abidjan

KAA Kenya Airports Authority

ACI Africa Website:
https://www.aci-africa.aero/