

ICAO Virtual Seminar of the ICAO Assistance Project with European Union (EU) Funding Phase II

African Airports Road to Net Zero

Yacine KEBE
ACI AFRICA

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ACI Africa Presentation

ACI AFRICA AIRPORT MEMBERS



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





- Environment and Sustainable Development Regional Committee approved October 2021 by Africa Regional Board
- 15 core members
- 05 members at large
- Business partners
- Quarterly Online meetings
- 2 Physical meetings per year

NEW ACI AFRICA STRATEGIC PILLARS 2023 – 2025

Objective No. 2

- Sustainable Airport Industry

Goals

1. Programs and KPIs to assist African airports to achieve the long-term aspirations 2050
2. Develop collaboration with ACI Europe on above
3. Engage with funding agencies or other partners willing to contribute technically and financially
4. Create database of resource persons
5. Promote Sustainable Aviation Academy



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



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)*



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

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)





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

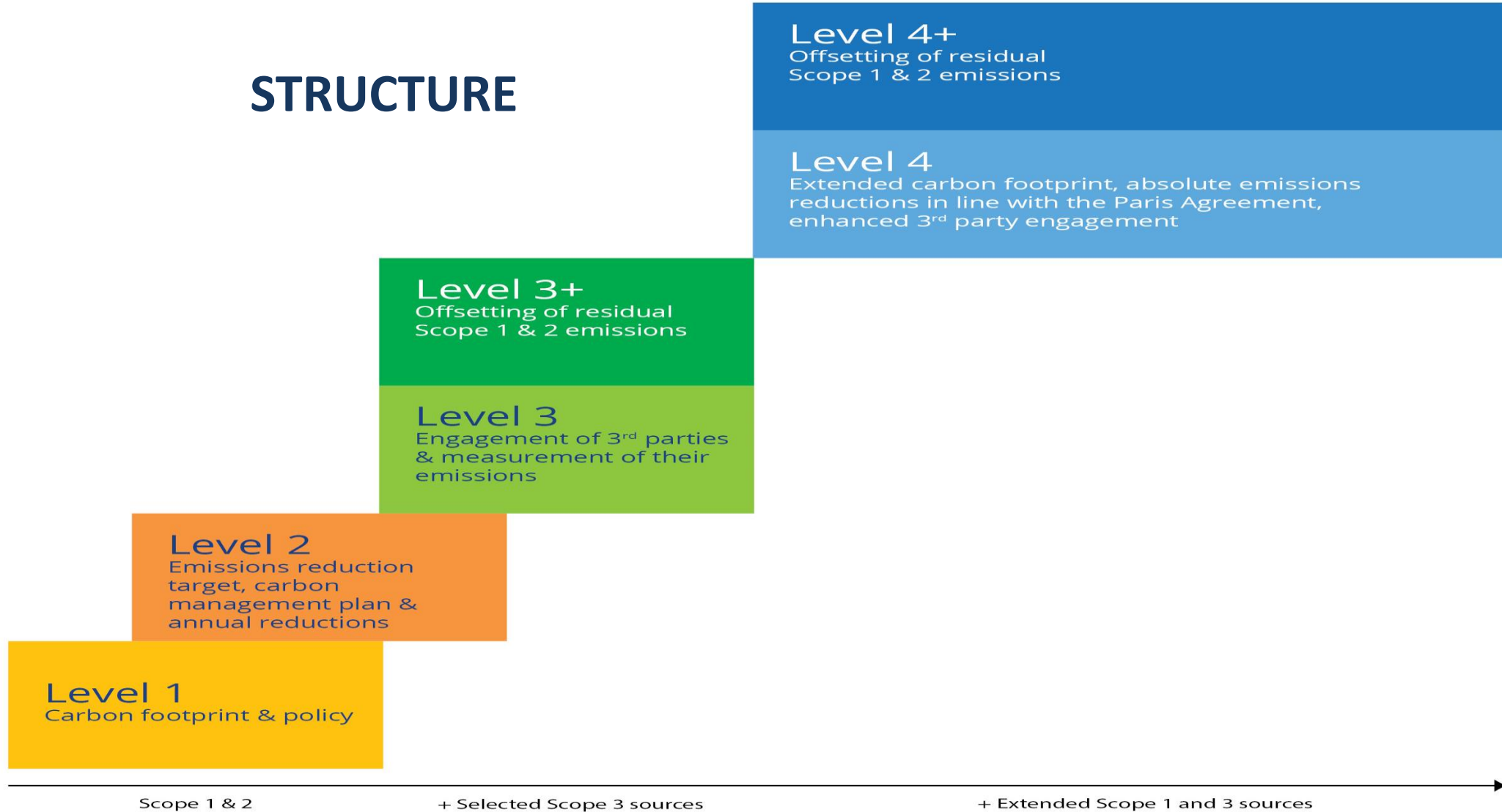
- 09 Off-site electricity generation
 - A Heating
 - B Cooling
 - C Lighting

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

STRUCTURE



LEVELS 4/4+ (introduced Nov 2020)



- 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



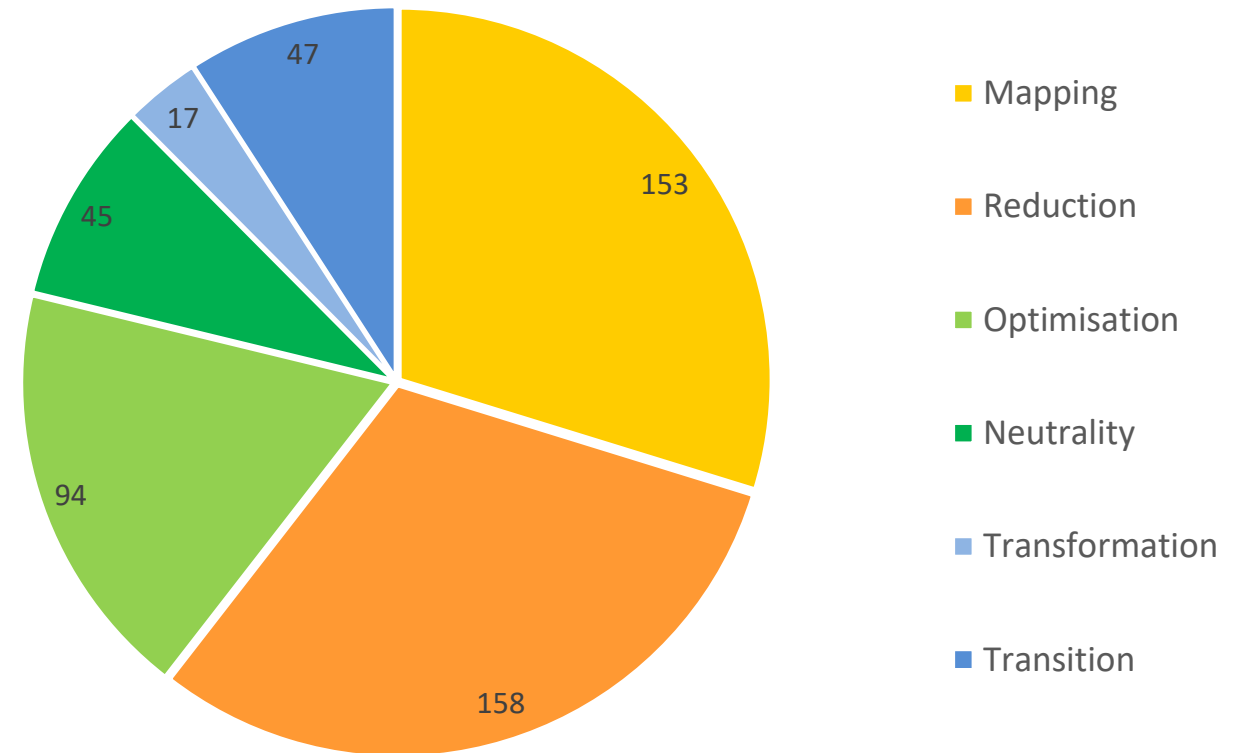
- All Level 4 requirements
- Offsetting of residual emissions



+500 accredited airports globally

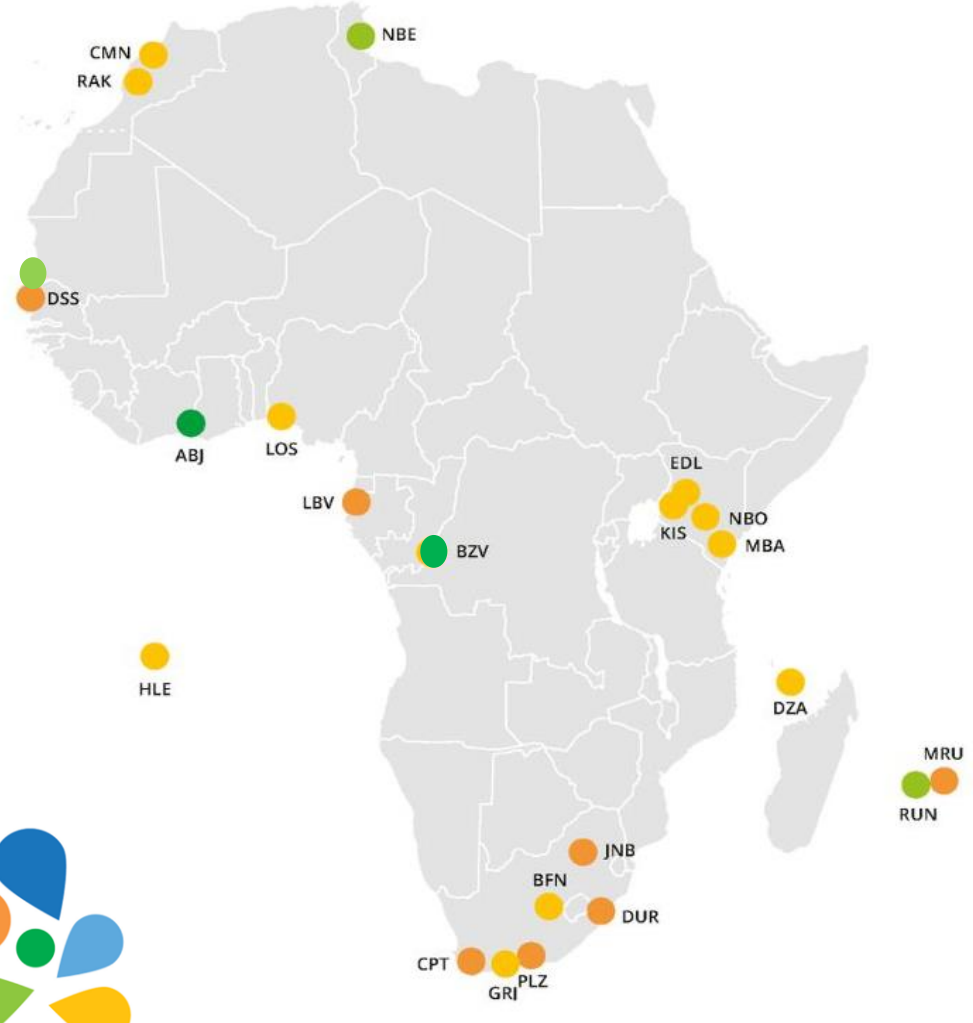


Accreditation levels



Airport Carbon Accreditation - ACA

30 accredited airports in Africa



- 14 at **Level 1**



- 10 at **Level 2**



- 4 at **Level 3**



- 2 at **Level 3+**



-549,643
tonnes of CO₂

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

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



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 projects

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.



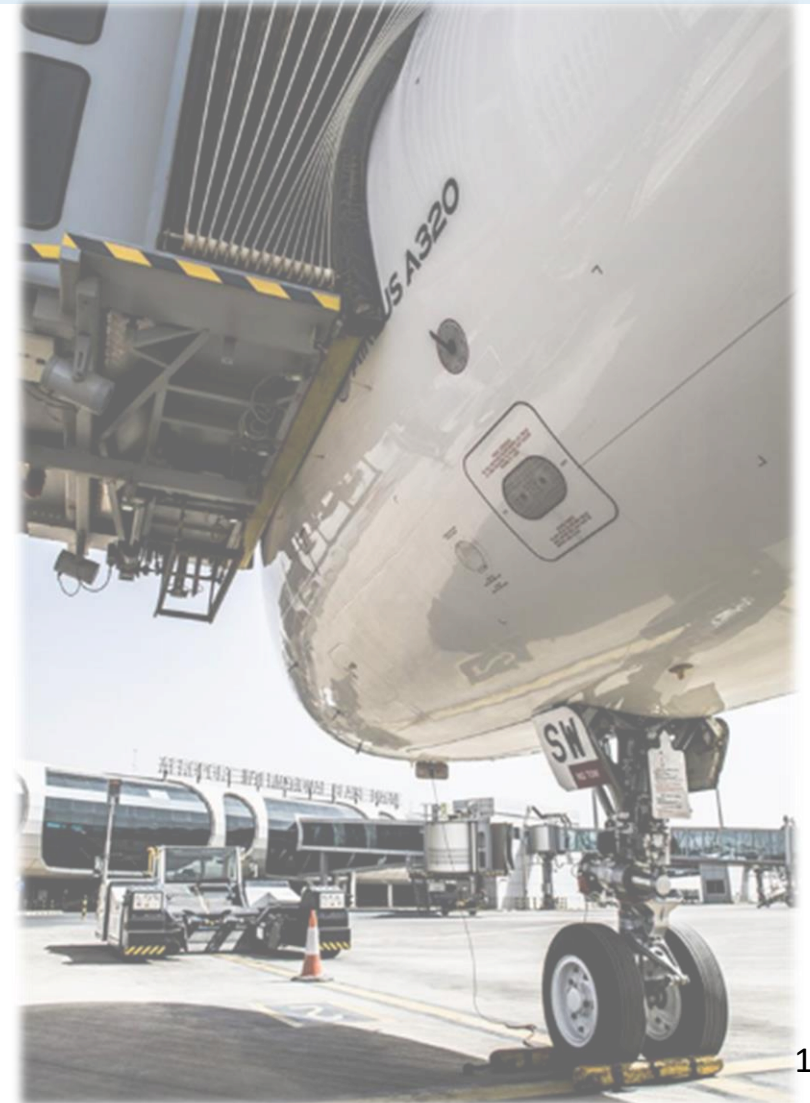


Combine all the elements gathered in the first steps to turn them into an actionable plan

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.



Airport Excellence (APEX) in Environment



Scope contains 10 key focus areas and any additional environmental focus an Airport may request:

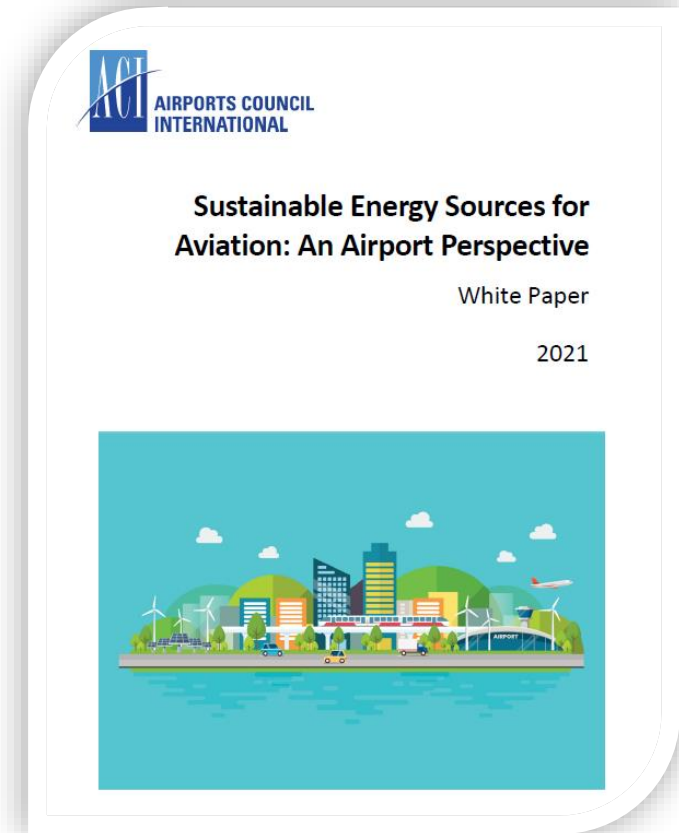
1. Environmental Governance
2. Noise Management
3. Air Quality, Climate Change & GHG
4. Water Quality Management
5. Soil Quality Management
6. Biodiversity, Wildlife & Habitat
7. Energy Management
8. Waste Management
9. Environmental Emergency Management
10. Construction Environmental Management

Accommodating Sustainable Energy Sources

- While the traditional role of airports regarding aircraft energy use has generally been as a facilitator to provide locations for aircraft and fuel operators to transport and store aviation fuel, the introduction of alternative fuels may require airports to contribute differently to enable their use.

ACI World looked at different types of sustainable energy sources for aviation: Drop-in Sustainable Aviation Fuels (SAF); Hydrogen as an Energy Carrier and Battery-Powered Aircraft, to attempt identifying potential implications on airport infrastructure and operations.

- ACI World partnered with the Aerospace Technology Institute (ATI), to delve further into the integration of hydrogen at airports and launched a study on the “Integration of Sustainable Aviation Fuels (SAF) into the air transport system, once again in partnership with the ATI.



Accommodating Sustainable Energy Sources

- First, airports interested in facilitate the process of having SAF onsite airports should start early by familiarizing themselves with SAF: Looking at Technical and regulatory requirements and also to understand the policies or incentives that can contribute to the facilitation process.

Then, Identifying current suppliers: currently there are only two active manufacturers and so it is likely that airports wanting to facilitate SAF will need to import it.

- Creating working groups that include all relevant stakeholders, to exchange information and possibly to conduct an infrastructure feasibility study and an activation plan.

Organizing test flights to test local processes and procedures in terms of administration and logistics.

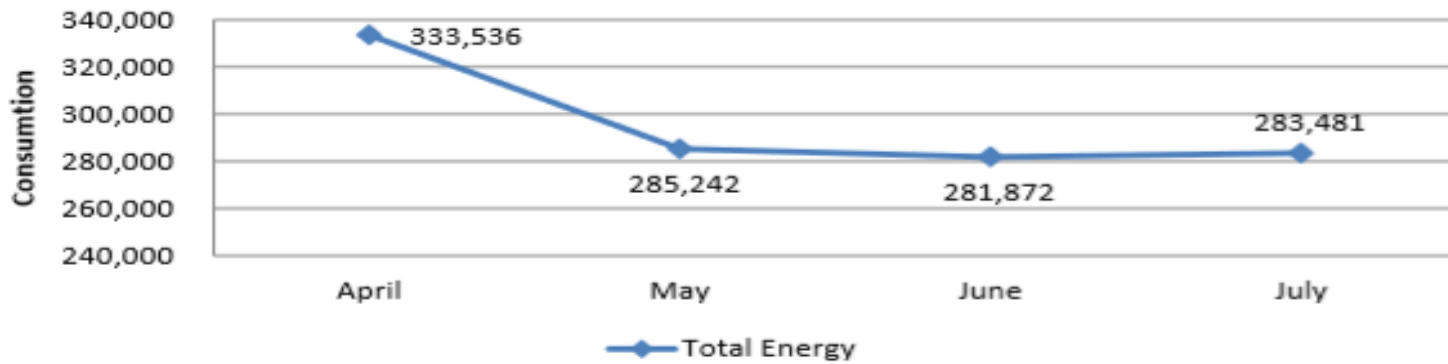


- The solar photovoltaic system of 500kWp is connected to the airport terminal grid.
- This gate electrification equipment allows aircraft serving international flights to switch off their Auxiliary Power Unit (APU) when parked at the gate, and avoid the use of portable diesel-powered GPUs, thus reducing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

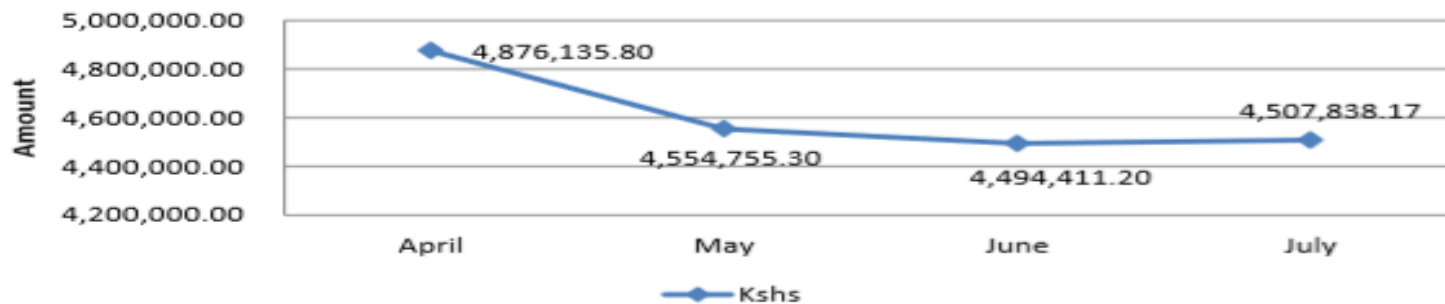


MOMBASA AIRPORT SOLAR AT GATE PROJECT

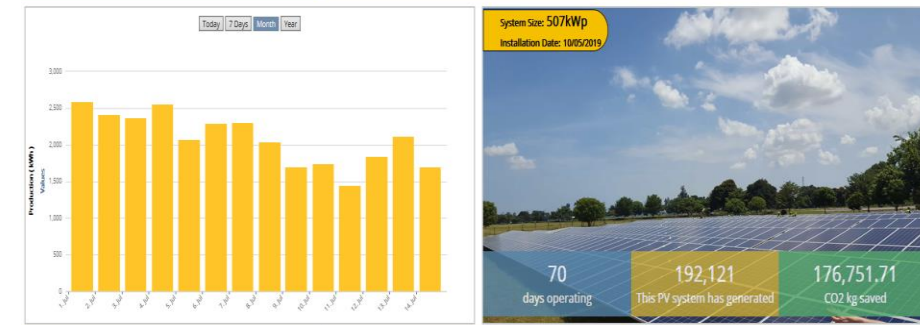
Total Energy (KWH)



Amount (Kshs)



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

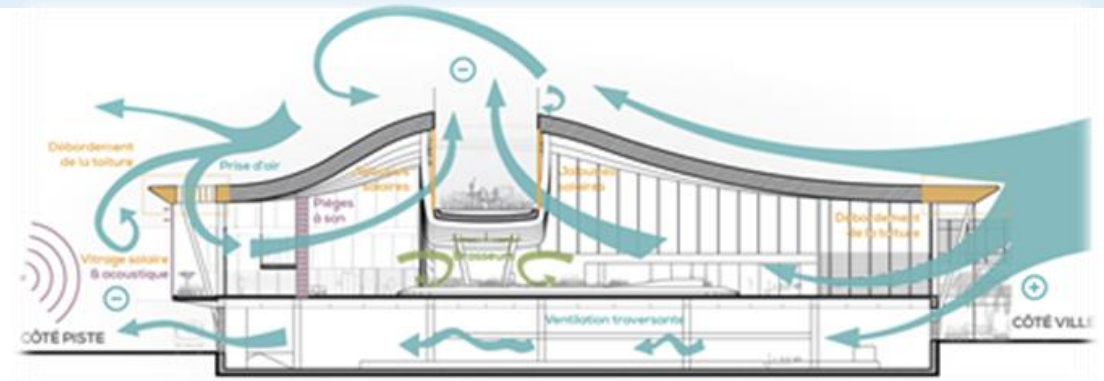
NEW BIOCLIMATIC TERMINAL

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



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



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



Currently accredited ACA level 3

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



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

Thank You



AÉROPORT
DE LA RÉUNION
ROLAND GARROS



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