



# Presentation on Solar Project for Moi International Airport

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At English Point Marina  
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The Kenya Action Plan on Aviation

Stake holders participation in CO<sub>2</sub> reduction

ICAO/EU assistance in the implementation of these measures

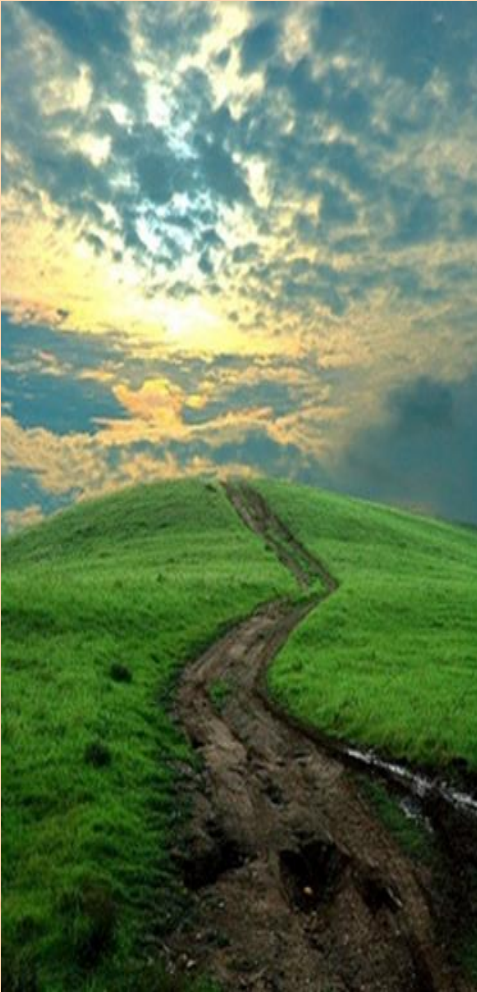
Selection of solar energy in the action plan

Solar Project selection in environmental plan of the State

KCAA involvement in the Solar Project

Lessons and Recommendation

# Kenya Action Plan



Aviation Environmental Working Group (AEWG) created | 2012

1<sup>st</sup>. Action Plan submitted | **2013**

ICAO-EU Assistance Project | **2014**

2<sup>nd</sup>. Action Plan submitted | **2015**

# Purpose of the action plan

## For Kenya

- Opportunity to identify measures that will improve fuel efficiency and reduce emissions.

## For ICAO

- Allows future progress toward the global environmental goals to be assessed

# Kenya Action Plan Contents

- Contact information
- Baseline fuel consumption CO2 emissions
- List of selected measures
- Expected results (fuel consumption, CO2 emissions & traffic) upto 2035
- Assistance needs

## Selected Mitigation Measures

### BASKET OF MEASURES FOR KENYA

Category 1

Aircraft Related Technology  
Development

Category 3

Improved ATM and infrastructure use

Category 4

More efficient operations

Category 6

Regulatory measures

Category 7

Airports Improvements

# Aviation Environmental Working Group (AEWG)

➤ KCAA

➤ KAA

➤ MOTIHUD

➤ NEMA

➤ Ministry of Environment

➤ MET

➤ DOD

➤ KQ

➤ KAAO

➤ SAX/540

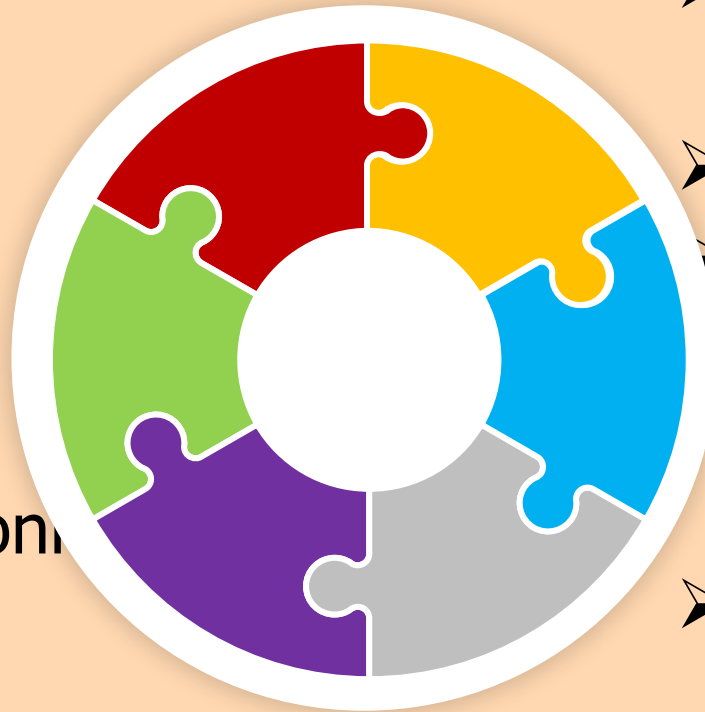
➤ Kenya Aerotech

➤ African Express Airways

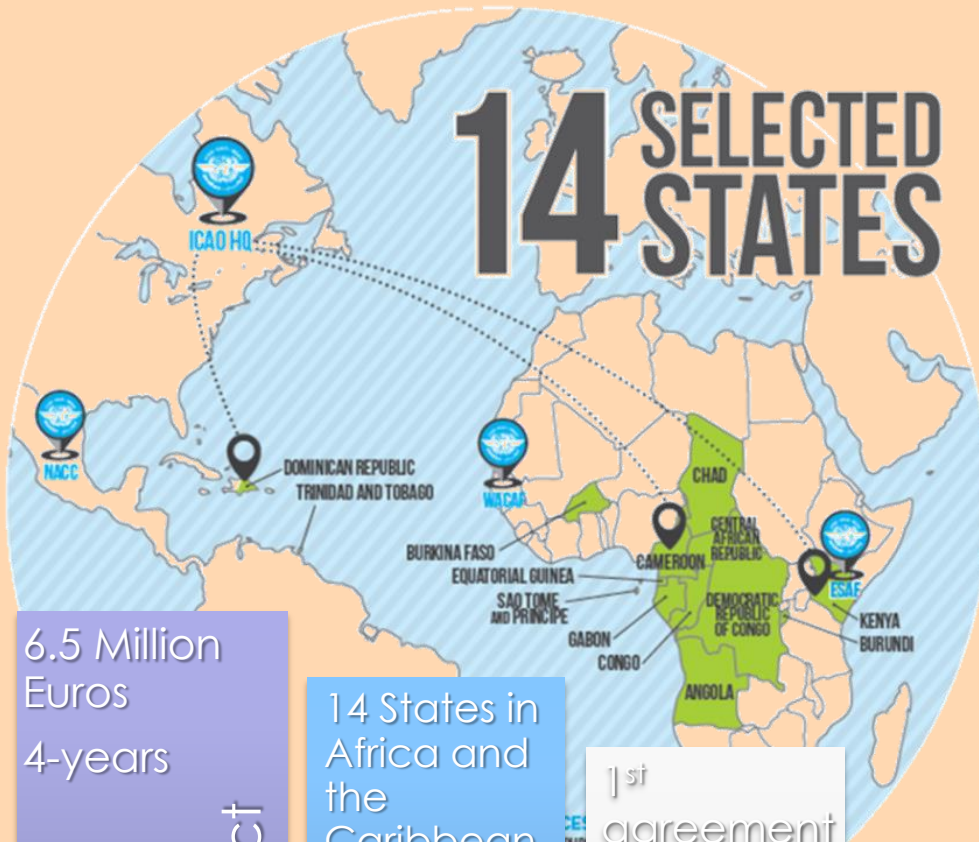
➤ Air Kenya Aviation

➤ ALS

➤ Ground Handling Service Providers



# ICAO –EU Assistance project



6.5 Million Euros  
4-years

The project

14 States in Africa and the Caribbean

1<sup>st</sup> agreement for assistance in the area of ENV at ICAO

**Objective 1:** Action Plans

**Objective 2:** Aviation Environmental System (AES)

**Objective 3:** Pilot Mitigation Measures

**CAPACITY BUILDING FOR CO<sub>2</sub> MITIGATION FROM INTERNATIONAL AVIATION**



# Assistance to Kenya by ICAO –EU Assistance Project

✿ Through the ICAO environmental programme and the ICAO-EU Project, Kenya has already receive following assistance:

- Capacity building for the Focal Points
- Preparation of the Action Plan
- The Aviation Environmental System (AES) was installed and will help Kenya update the Action Plan and monitor future actions
- Solar Project Funding for MIA

## Selection of solar energy in the action plan

In the action plan there was request for financing of solar mitigation measures at the following Airports:

<b>International Airports</b>	<b>Expected solar power generation (mw)</b>
<b>Jomo Kenyatta International Airport (JKIA)</b>	3.00
<b>Moi International Airport (MIA)</b>	2.00
<b>Wajir International Airport (WIA)</b>	0.50
<b>Eldoret International Airport (EIA)</b>	1.00
	6.50

# Overview of the Solar Project in Mombasa

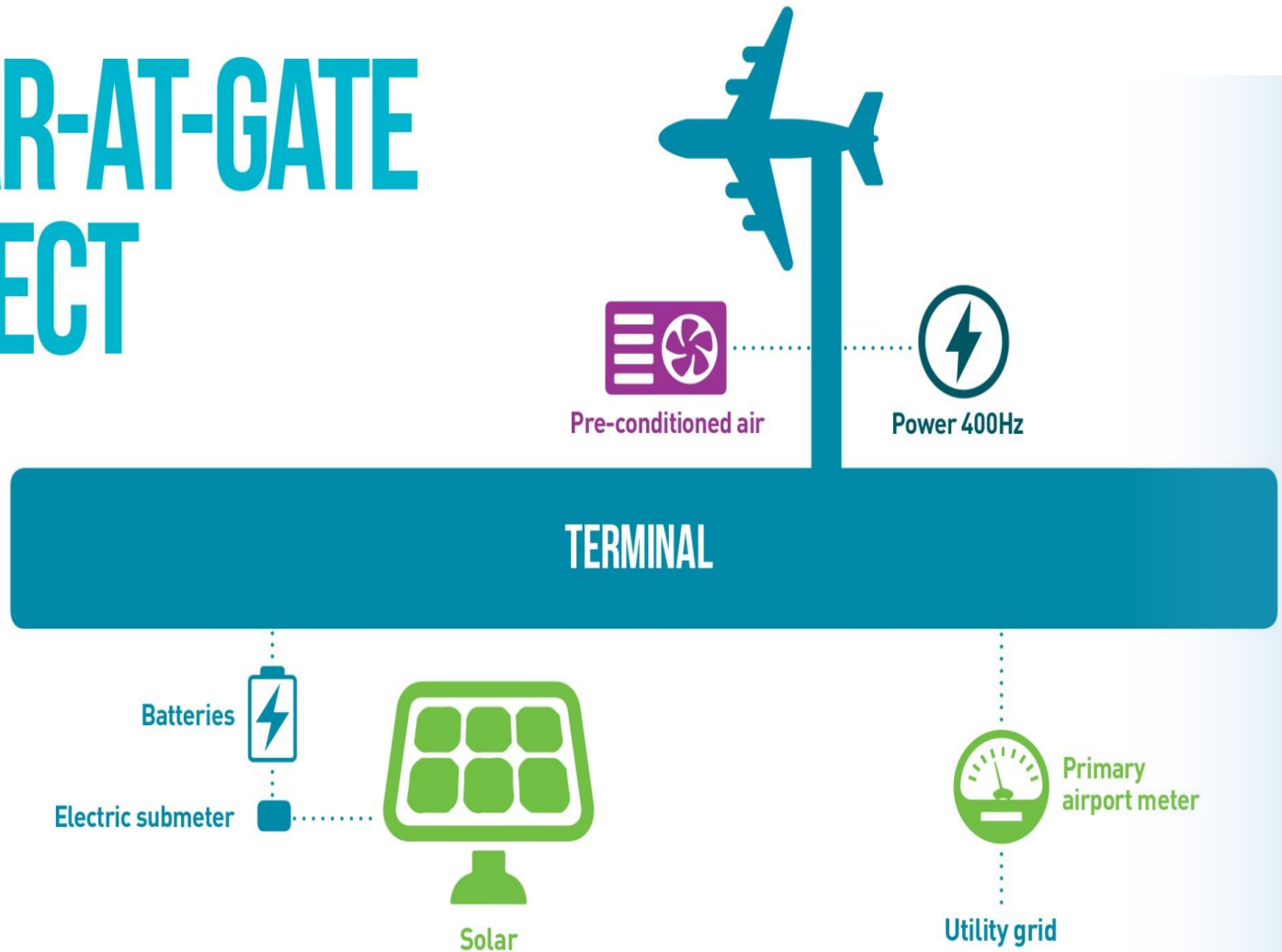
ICAO Selected Kenya to implement the solar project for MIA in August 2016.

Components of the solar Farm.

- Photovoltaic system of 507kW (about 1.5 acres)
- Electrical GPU/PCA to be powered by green energy
- Procurement conducted by ICAO,
- Budget: 1.4M USD funded by ICAO-EU project
- Solar expert recruited by ICAO to provide TA
- Management done by ICAO, KCAA and KAA
- The assets will be transferred to KAA at the end of the project
- The objective of the project is TO trigger similar projects on a wider scale to other airports

# Demonstrating the Solar At-Gate Concept

## SOLAR-AT-GATE PROJECT



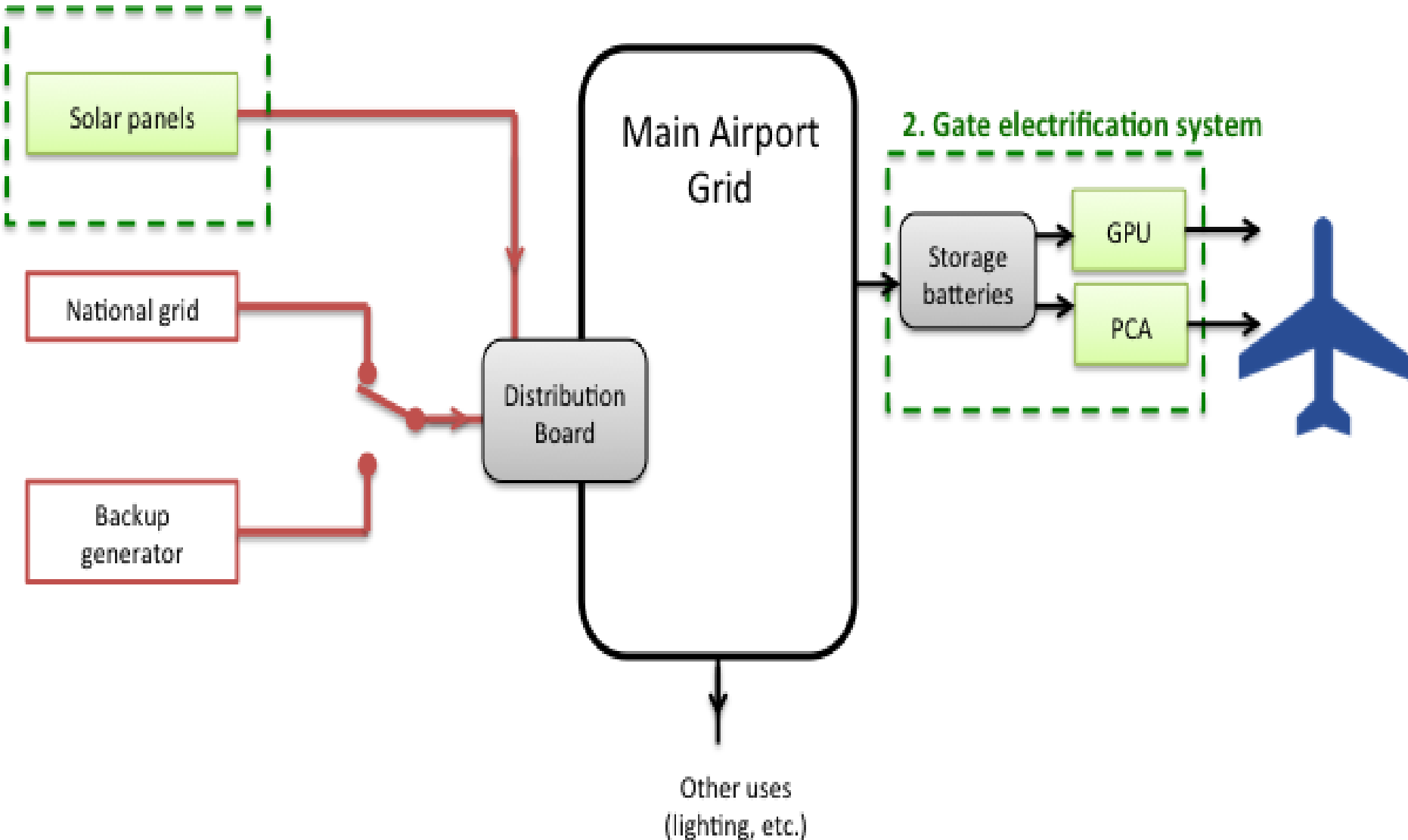
# Solar-At-Gate Pilot Projects | Moi International Airport,

- Solar max. capacity: **507 KW**
- 1 GPU 180kVA + 1 PCA
- Cost: **1,422,314 USD**
- Completion date **December 2018**



# Pilot Project “Solar-at-Gate” Approach

## 1. Solar photovoltaic (PV) system



# KCAA involvement in the Solar Project Implementation

- The link between ICAO and KAA
- KCAA involved in the Management of the project through coordination with ICAO and KAA
- KCAA team appointed to be members of the implementation team
- Active participation in the project meetings
- Active participation in the contract drafting and contents review of the SDD
- Active participation in clearance of equipment's at the Port
- Site inspections during the project implementation

# Solar Equipment's Offloading process





# Solar Farm Site –Equipment Setting



# Solar Farm Site –Equipment Setting Cont..



# Solar Farm Site –Equipment Setting Cont..



# Solar Farm Site –Installation Inspection



# Lessons learned from the project and recommendations

No	Lessons	Recommendations
1	Proper Planning and Funding	<b>There is need for clear planning and funding of the Solar project</b>
2	Need for team work during project implementation	It is recommended that an Active Project team is formed in order to meet project timeline and implementation
3	Need to involve all key stakeholders	Collaboration with all stakeholders for a seamless implementation of the project is highly recommended
4	Continuous engagement with project members	It is highly recommended to have frequent project meetings during the implementation.

# Lessons learned from the project and recommendations

No	Lessons	Recommendations
5	Lengthy Clearance process of goods at port.	There is need for quick clearance process of goods at port that will ensure short time in term of clearance of goods
6	There was onsite training of two airport engineers during the installation process	For proper succession planning there is need to have onsite training during the project implementation for good maintenance of the solar farm equipment's
7	The power to be generated will provide 50% of the whole airport demand	There is need to increase the solar farm to cover 100% of the energy demand to ensure that MIA is supplied with green energy and promote the development of green airports in other airports in Kenya and the regions



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Thank You