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Capacity Building for CO<sub>2</sub> mitigation from international aviation - Fourth Seminar  
Mombasa, Kenya  
12-14 December, 2018

# Moi International Airport Solar At-Gate Pilot Project

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# Options for Mitigating International Emissions: Basket of Measures

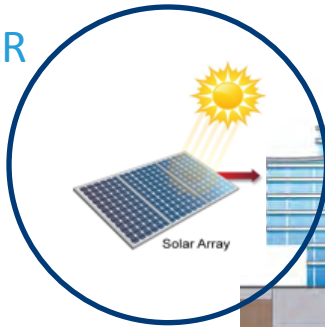
- Technological Improvements
- Operational Improvements
- Sustainable Aviation Fuels
- CORSIA





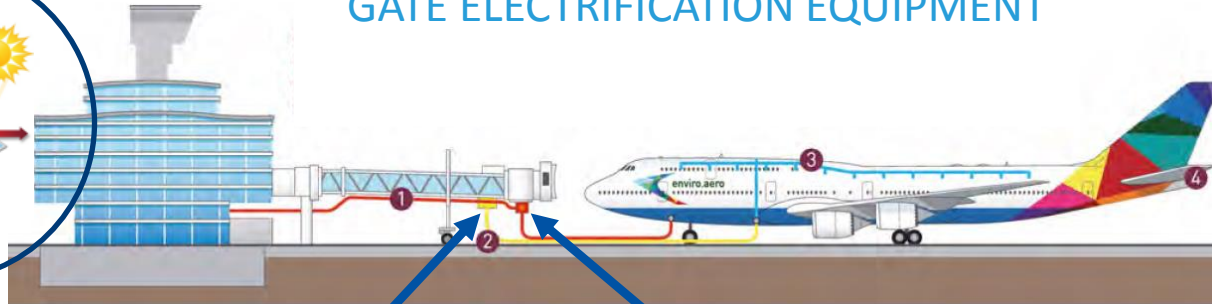
# Solar Power for At-Gate Operations

SOLAR



Solar Array

GATE ELECTRIFICATION EQUIPMENT



Preconditioned Air Unit

Ground Power Unit



# ICAO EU Assistance Project

## Solar At-Gate Projects





# Moi International Airport Solar At-Gate Pilot Project

Implemented by ICAO  
Funded by the European Union  
Hosted by KCAA and KAA  
Constructed by Solar Century



Solar Array

Battery Storage System

Mobile Gate Electrification Equipment



# Project Steps

- Concept development with local partners
- Secure funding
- Preparation of tender
- Bidders' conference
- Review of bids and selection of contractor
- Design and construction



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# Design Options

Ground-mount



Carport



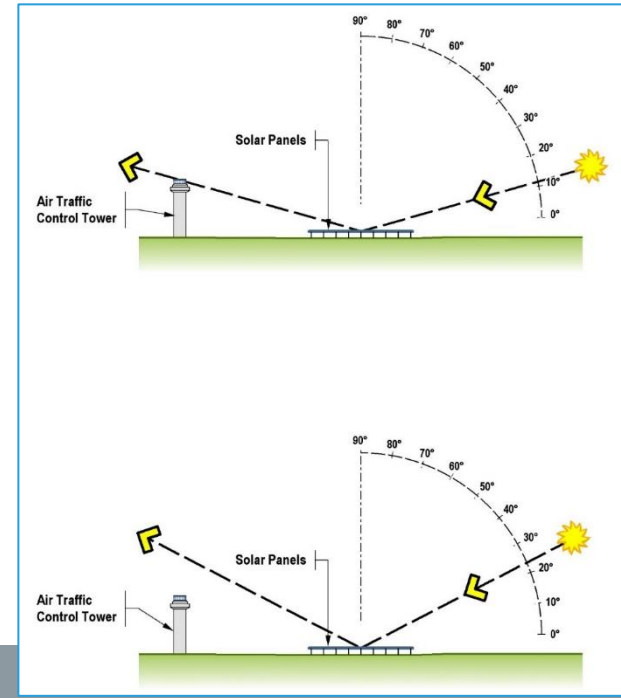
Roof-mount





# Glare Analysis

- Use modeling tool
- Assess Airport sensitive receptors
  - Control Tower
  - Aircraft on final approach
- Ensure no adverse impact







# Project Overview





# Ground-mounted Solar Photovoltaic



- Nameplate 507 kWdc / 440 kWac
- 1,560 solar panels
- Two educational kiosks in terminal



# Gate Electrification

- Pre-conditioned Air Unit (PCA) and 400 Hz Ground Power Unit (GPU)
- Mobile units able to serve all 6 gates as needed
- Electrical connections being constructed to allow units to connect to terminal grid power



- GPU is a smaller unit that can be moved by ground crew without assistance
- PCA is larger and will reside on a trailer that can be towed by existing airport GSE



# Battery Storage



- Schneider Electric Lithium-Ion Storage System
- Power conversion system
- Central control and environmental monitoring

Site is on southwest side of terminal





# Environmental Benefits

- Eliminates aviation fuel burn at gate
- Provides power from renewable energy
- Reduces CO<sub>2</sub> emissions by 1,287 Metric Tons per yr.  
= Carbon sequestered by 613 hectares of forestland
- Co-benefit: reduces NO<sub>x</sub> improving local air quality



# Next Steps

- Provides a model for other airports
- Easily replicable, and integrated into existing airport
- Project monitoring conducted remotely, readily shared with other states via the web
- Potential opportunities for expansion at Moi



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THANK YOU