



aviationrenewables

# PROJECT REPORT



**LOCATION** Central Africa

**DATE** January 2017

**CLIENT** Private Airfield, Mine Site

**EQUIPMENT** Solar Series LED PAPI's  
LED Sequence Approach Lighting System  
Autonomous Runway Marking System

**APPLICATION** Autonomous LED Approach System for  
Scheduled Flights and MEDEVAC Operations

## SYNOPSIS

Aviation Renewables was contracted to design, deliver, install and provide training for a complete off-grid, autonomous airfield marking and lighting system at a remote mine site in Central Africa. The system consisted of two 4-Box Solar Series LED PAPIs powered by the iSeries portable battery systems, an autonomous LED sequence approach lighting system, LED runway end identifier lights (REILs) and an autonomous runway marking system for day and nighttime operations.



## CHALLENGE

The airfield is located in a remote area of the African jungle, far away from any urban infrastructure or reliable road networks. Therefore, the client sought to improve the safety of their jet aircraft runway operations by installing a semi-portable, autonomous runway marking and approach lighting system. The equipment was intended to enhance operational safety during the rainy season, when visibility on approach can be close to lower limits resulting in the cancelation of flights. With ongoing challenges of theft, unscheduled maintenance, torrential rains and challenging terrain within the approach path, the end user called for all items to meet ICAO performance specifications while eliminating the need for any hard wired electrical infrastructure, maintenance or servicing requirements. Aviation Renewables carried out the design, delivery, installation support and training over a 3 month period.

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## SOLUTION

Key to Aviation Renewables' system design was the ability to deliver a semi-permanent airfield marking and lighting system that could be deployed or packed up within 30 minutes. This required the Solar Series LED PAPI's and the iSeries autonomous battery power systems to be installed with quick release frangible mounting solutions along with an LED sequence approach lighting system to be secured to frangible base plates allowing for rapid install and retrieval.

The 4-box LED PAPI system is fully compliant to ICAO specifications with a hand held remote controller capable of controlling the LED PAPIs, LED approach lighting system and LED REILs. The autonomous Uni-directional Approach Lighting System (UDALs) and Runway Edge Identification Lights (REILs) provided a lead-in strobe approach for early identification of the runway threshold. The lights are fully portable, allowing for easy deployment in low visibility conditions with rapid collection after use due to security and theft reasons. The runway was delineated with FAA certified autonomous runway edge and threshold markers delivering high visibility performance to pilots on approach. The low-tech nature of the runway markers makes them relatively unattractive to thieves, and as a result will be permanently installed and secured along the runway edge and threshold.



Aviation Renewables was on-site for installation, training and commissioning of this system for 5 working days, assisting local operations while carrying out a complete training and commissioning of the entire system. Aviation Renewables will continue to support the project as required by the customer well into the future.

