



aviationrenewables

PROJECT REPORT

LED PAPI SYSTEMS DELIVERED FOR REMOTE AIRPORTS TO OPERATE IN THE MIDDLE EAST



LOCATION Middle East CAA

DATE 2021

CLIENT Civil Aviation Authority

EQUIPMENT Solar Series LED PAPIs with LPG Generator

APPLICATION Solar LED PAPI Systems for 24/7 Operations

SYNOPSIS

Aviation Renewables delivered multiple solar-hybrid powered LED Precision Approach Path Indicators (PAPIs) for remote airports in the Middle East. Aviation Renewables worked with the Aviation Authority to design a unique solar-hybrid power system to ensure the LED PAPI units will operate in the challenging mountainous terrain year round.

CHALLENGE

The mountainous terrain of Middle East poses significant hazards for aviation. Many of the remote airports in the country have challenging approaches where an approach slope indication would dramatically increase the margin of safety.

The Middle East Civil Aviation Authority conducted a safety review that identified the need for solar powered LED PAPI units at several airports for both day and night operations. These austere locations have very little electrical infrastructure. As a result, the Middle East CAA tasked Aviation Renewables with designing a hybrid power system that would supply reliable, 24/7 electricity for the LED PAPI systems. The harsh winter conditions add some complexity to the design for a standalone solar power system. Aviation Renewables and its engineering team provided training and assistance to a local company to supply and install the correct power solar power and LED PAPI system.



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SOLUTION

Aviation Renewables and its Engineering Team are a global leader in off-grid solar power to design and specify a solar hybrid power system that would be reliable, simple to maintain and easy to install. The system uses solar panels to charge batteries, with the batteries sized to operate a DC-powered LED PAPI for several days with no charging. The solar modules are sufficient to keep the batteries charged through all but the worst of winter storms. In case of poor winter weather, an LPG-fueled, Direct-Current generator sits on standby at all times to bring the batteries back up to full charge.



The generator is a unique design that is specifically intended for solar backup situations and requires very little maintenance and no day-to-day operational inputs. Remote monitoring systems ensure the LED PAPI systems are operational 24/7 with automatic fault detection systems built in. The LED PAPIs supplied by Aviation Renewables are incredibly efficient, and use very little electrical power from the batteries. As LEDs have a life expectancy of 100,000 hours, there is almost no maintenance required for the life of the LED PAPI units. As an FAA-certified PAPI, the unit is proven to withstand harsh environmental conditions and will be a good match for the mountain weather.



Aviation Renewables is pleased to have lead the program while providing train and remote assistance to a local installation company to install, operate and maintain these solar powered LED PAPI systems.