



aviationrenewables

PROJECT REPORT

LED APRON LIGHTING OPERATING AT CARIBBEAN INTERNATIONAL AIRPORT



LOCATION Barbados

DATE December 2019

CLIENT Grantley Adams International Airport

EQUIPMENT LED Apron Floodlighting

APPLICATION Apron Floodlighting compliance to ICAO Annex 14 5.3.23 / IES RP37-15 Standards

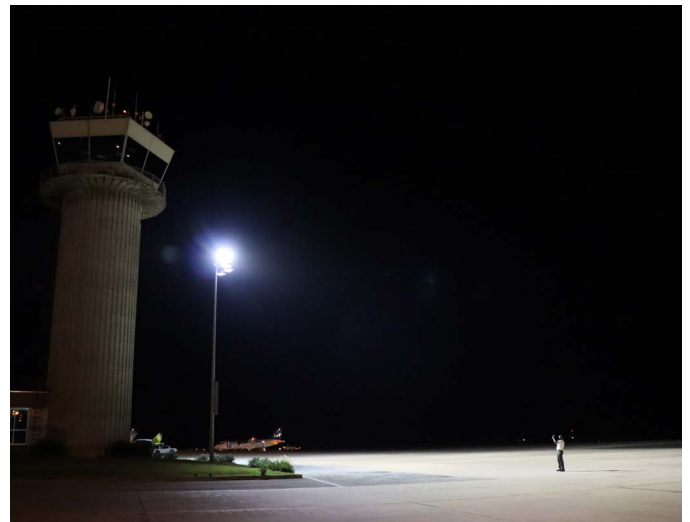
ROI 2.5 Years on the Entire System

SYNOPSIS

Aviation Renewables completed a high mast LED Apron Floodlighting project at Grantley Adams International Airport, Barbados. The system was designed to meet ICAO illumination standards, and was installed within a 4-day period without impacting airport operations. The new LED apron lighting system offers exceptional savings in electricity, maintenance and equipment costs with a 10-year warranty on performance, parts and labour.

CHALLENGE

Grantley Adams International Airport is a large international airport and is the primary gateway to the country, as well as a major hub for the Eastern Caribbean region. As a 24/7 airport with a large terminal and cargo apron, the airport uses high mast lighting to illuminate dozens of aircraft stands during the night. Electricity in Barbados is quite expensive due to the need to import diesel fuel to power the nation's electrical grid. As a result, the existing High Pressure Sodium (HPS) lighting fixtures were costly to operate and maintain. The airport sought assistance from Aviation Renewables to design a solution that would decrease operating costs, reduce their carbon footprint, and increase the safety of operations by providing superior illumination that meets or exceeds ICAO requirements.



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SOLUTION

Aviation Renewables conducted a thorough site visit and in-depth energy analysis with its manufacturing partner Musco Lighting. A solution utilizing new poles and pre-cast concrete bases was designed to minimize installation time. The new LED apron lighting has a special coating to resist corrosion in the salt-laden air and tropical UV rays. In addition, all wiring is placed internally for the poles, crossarms and fixture mounts. This enables the provision of a 10-year warranty on the light levels. The only cost to the airport will be electricity, as all parts of the system, labour and maintenance are covered under this warranty.



The system provides illumination to a part of the apron that was previously not lit. The new LED Apron Lighting provides a stark contrast to the existing HPS fixtures that are adjacent, with a large reduction in glare for pilots approaching the aircraft stand. In addition, the lights use roughly 40% of the electricity of the existing HPS fixtures when at 100% intensity. In order to further reduce the electricity usage during slow periods in the overnight period, a dimming system was mounted in the control tower. Dimming the lights to 50% intensity for several hours per night provides significant savings, and the ROI on the entire system is estimated at 2.5 years, when compared to an HPS solution.



OUTCOME

The airport was eager to complete the installation prior to the winter holiday rush. Aviation Renewables was on site and worked with a team of airport employees and local contractors to install the system. The pre-cast foundation slip fit system allowed the entire system to be installed and operational within 4 days. The dimming controller mounted in the ATC tower was set up easily using existing conduit runs. The dimming controller contains a system monitor that allows remote monitoring by a central monitoring center in the USA using an LTE data connection. This allowed the monitoring center to perform a health check on each individual fixture and deliver a commissioning report within minutes of activation.

