

# Fully solar powered airport: A case study of Cochin International airport

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## Abstract

The contribution of aviation industry towards green house gas emission is getting attention all over the world. The carbon footprint of airport can be reduced by substituting the conventional source of energy with solar PV based power generation. The mandatory vast and free space areas around runways can be utilised for utility scale solar PV power plants. The present research aims to analyze the operational performance of 12 MWp solar powered airport commissioned by Cochin International Airport Limited (CIAL), India based on first year operational data. The performance of the plant is also simulated using most popular PV simulation softwares – PVSyst and SolarGis, by accurately giving the plant specification. The average performance ratio (PR) of the plant is 86.56% and corresponding capacity utilisation factor (CUF) is 20.12% with final yield of 1984.1 h. The performance parameters obtained through the software was found to be in close match with the measured values. The economic and environmental analyses of the solar powered Cochin airports confirms its effectiveness in reducing the carbon footprint, leading to virtually zero emission, clean and green sustainable airport.

## KEYWORDS

Greenhouse gases; Aerotropolis; Utility scale PV; SCADA; PVSyst; Zero emission

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