

Solar Panel Installations at Airports

POSITION

IFALPA supports the use of renewable energy sources, where operationally suitable. So far, no major safety incidents related to solar panel installations have been reported. Nevertheless, design and installation should always be preceded by a risk analysis, specific to each installation.

BACKGROUND

At first sight, airports seem an ideal environment for solar photovoltaic projects, since airports are usually situated on flat terrain and encompass a large area of “unused” terrain between runways, taxiways, and the airport buildings. The land close to and at the airport is often unsuitable for other use due to the noise of low-flying aircraft and environmental restrictions, such as limits on airspace penetration and wildlife management. The airport itself represents a single large customer immediately adjacent to these kinds of projects.

The usage of solar energy at airports has developed gradually and various types of installations are currently used. These vary from application on areas between the taxiway and runway system to installation on terminal buildings or parking deck roofs.

Several airfields in the United States have large projects installed¹, as well as airports in, for example, Germany, Africa, and the Caribbean. Cochin International Airport (CIAL)² in India has been the first fully solar powered airport since 2016.

There are potential risks associated with the use of solar photovoltaic installations at airports.

The most common identified risks to be mitigated are:

- the effects of glare from reflection on the solar panels;
- thermal disturbances from heat radiation and the effect on wild-life, (particularly the possibility of increases in bird populations);
- the accessibility of (remote) areas by emergency services; and
- possible interference of communications and navigation systems.

¹ Minneapolis St.Paul, Tampa, Denver, Indianapolis, Tucson, Honolulu

² <https://amp.cnn.com/money/2016/03/14/technology/india-cochin-solar-powered-airport/index.html>

Depending on the type and place of the installation, other risks should also be considered. The airport Runway Safety Team should be involved in the assessment of these risks.

Where essential airport services make use of renewable energy, provisions should be in place to ensure its reliability, availability, and continuity in case of disruptions in the solar power supply.

Because of the above, the solar project should be consistent with the Airport Master Plan³ and Airport Layout Plan; and an Environmental Impact Assessment⁴ should be conducted.

Guidance regarding glare hazard (ocular impact) is published by the FAA in conjunction with the United States Department of Energy (DOE), in the form of a Solar Glare Analysis Hazard Tool (SGAHT)⁵, supported by an interim policy⁶ and technical guidance⁷.

3 ICAO doc 9184 – part 1 Master Planning

4 ICAO doc 9184 – part 2 Land use and Environmental Control

5 <https://share.sandia.gov/phlux>

6 <https://www.gpo.gov/fdsys/pkg/FR-2013-10-23/pdf/2013-24729.pdf>

7 https://www.faa.gov/airports/environmental/policy_guidance/media/airport-solar-guide.pdf