Agenda item 4.1(c)
Paragraphs 30-33 of the annotated agenda

Outcome of the Small-Scale Working Group

CDM EB 89
Bonn, Germany, 9 to 13 May 2016

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Case selected for presentation: “SSC-I.x: Solar power for domestic aircraft at-gate operations” (para. 30)

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Procedural background

In 2014 the secretariat received a request from International Civil Aviation Organization (ICAO), to jointly develop two aviation methodologies under the CDM (e-taxing and solar at gate).

EB 88 requested to further revise the methodology :

a) taking into account the feedback provided by the Board on technical issues during the meeting,
b) limiting the application of the methodology to domestic aircrafts as proposed by the International Civil Aviation Organization (ICAO), and
c) Consultation with ICAO on the proposed methodology

SSC WG 50 in consultation with ICAO recommended the proposed revised draft taking into account the EB guidance

Purpose

The purpose is

- To develop a new methodology based on the objective of CDM MAP 2016 to improve the existing regulation by **broadening the coverage of CDM in aviation sector.**

Scope and applicability

This methodology comprises renewable energy generation from solar photovoltaic technology that supply electrical energy to airports for aircraft at-gate operations (ground power and pre-conditioned air delivery to aircraft during its ground time).

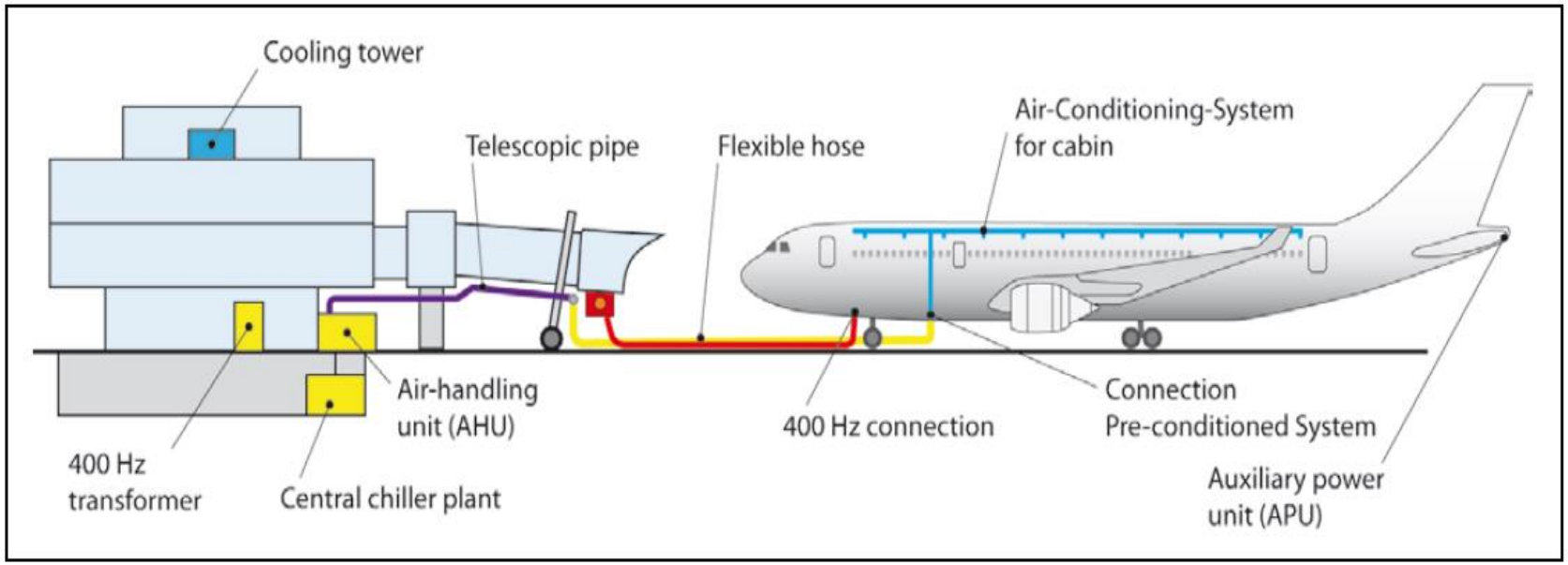

Figure 2 Basic layout of aircraft ground energy systems (AGES)

Source: *Aircraft Ground Energy Systems, Zurich Airport*

Scope and applicability

- In the absence of the project activity, the users would have been supplied electricity from one of the sources listed below:
  a) Auxiliary Power Unit (APU);
  b) Ground Power Unit (GPU);
  c) A national or a regional grid; and/or
  d) Fossil fuel fired captive power plant(s).

Aircraft built-in APU

Mobile Ground System

Ground Energy Systems

Source: *Aircraft Ground Energy Systems, Zurich Airport*

Baseline scenarios

Airport has 6 stands at its apron:

- 2 fully equipped bridges, shown as stand 4s and 5;
- 2 stands with grid-converted underground GPU (no PCA), shown as stands 3 and 6;
- 2 APU-running stands, shown as stands 1 and 2

Baseline emissions

- Baseline emissions where electrical energy would have been supplied by baseline sources to meet the requirements of aircraft electrical equipment and/or PCA is calculated as follows:

$$BE_y = \left[EC_{PCA,y} + EC_{Electricity,y}\right] \times EF_{CO2}$$

- $EC_{Electricity,y}$: Quantity of electricity consumed by aircraft electrical components for the domestic aircraft's at-gate operation which is supplied by the solar power in year y (kWh)
- $EC_{PCA,y}$: Quantity of electricity consumed by the aircraft to obtain aircraft pre-conditioned air for a domestic aircraft's at-gate operation which is supplied by the solar power in year y (kWh)
- EF_{CO2}: Baseline emission factor (kgCO2/kWh) determined in accordance with table 4

Project emissions and leakage emissions

- For solar PV project activities, PEy = 0.
- No leakage considered.

Key issues and proposed solutions

The revised draft in response to EB 88:

- Limits the the application to domestic aircrafts.
- Further clarify the procedure to determine baseline scenario and calculations of baseline emissions. For example:
  a) equation is further simplified to remove the electricity generation component
  b) Notations are corrected
  c) Rephrased paragraphs

Impacts

The proposed draft methodology would expand the applicability of the CDM to cover the aviation sector.

Recommendations to the Board

The SSC WG recommends that the Board adopt this final draft methodology that was developed in consultation with the ICAO, to be made effective at the time of the Board's approval.