*INTERNATIONAL CIVIL AVIATION ORGANIZATION*

**THE THIRD MEETING OF THE AERODROMES OPERATIONS AND PLANNING – WORKING GROUP (AOP/WG/3)**

Putrajaya, Malaysia, 2 – 4 June 2015

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**Agenda Item 7:    Any other business – Aerodromes Environmental Initiatives**

**AIRPORT CARBON EMISSIONS MANAGEMENT**

(Presented by Airports Council International (ACI))

| SUMMARY |
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| ACI provides guidance materials, training, measuring tool and accreditation service to help airports reduce greenhouse gas emissions.  This paper explains these products and services and urges the States to encourage airports use them.  It also invites States to include one of these products, *Airport Carbon Accreditation,* in their State Action Plans on Climate Change.<br><br>This paper relates to –<br><br>**Strategic Objectives:**<br>    E:  **Environmental Protection** – *Minimize the adverse environmental effects of civil aviation activities* |

## 1.    INTRODUCTION

1.1         At the United Nations Climate Summit last year, world leaders agreed that climate change is a defining issue of our time and that bold action is needed today to reduce emissions and build resilience to the adverse impacts of climate change.

1.2         It was therefore agreed that Greenhouse Gas (GHG) emissions should start declining before 2020 and by the second half of the 21st century the global community should achieve climate neutrality, i.e. living in a way which does not increase the level of GHG in the atmosphere.  To achieve this aim, it was also decided that a universal new agreement should be finalized under the United Nations Framework Convention on Climate Change (UNFCCC) at the 21st Conference of the Parties (COP-21) to be held in Paris in December 2015.

1.3         The IPCC (Intergovernmental Panel on Climate Change) estimated that aviation produces 2% of the global carbon dioxide, the main component of GHG emissions.  While airports account for only up to 5% of the 2%, the industry is determined to contribute to the global effort in reducing GHG emissions.

1.4         To help airports reduce GHG emissions, ACI has created a carbon accreditation program.  In addition ACI is offering a carbon calculation tool and guidance materials on carbon reduction to airports.  These are described in the following.

2.   **DISCUSSION**

<u>Airport Carbon Accreditation</u>

2.1       In June 2008, ACI Europe adopted a resolution whereby its member airports committed themselves to reducing carbon emissions, with the ultimate goal of becoming carbon neutral. Within a year, in June 2009, *Airport Carbon Accreditation* was launched in Europe, becoming the first ever carbon mapping and carbon management standard specifically designed for the airport industry.

2.2       As airport operators are not all at the same stage on the journey to carbon neutrality, the programme offers four ascending levels of accreditation: "Mapping" (Level 1) for carbon footprint measurement; "Reduction" (Level 2) for airports having reduced their carbon footprints; "Optimisation" (Level 3) for airports, on top of Level 2, having had their tenants and users reduce their carbon emissions as well; and finally "Neutrality" (Level 3+), for airports that have been able to neutralize residual direct carbon emissions by offsetting them.

2.3       There are numerous ways of reducing carbon emissions as suggested in the ACI Airport Greenhouse Gas Emissions Management Guidance Manual. For example airports accredited to date have reduced their carbon footprint by replacing air-cooled with water-cooled chillers, and florescent or incandescent lamps with LED lights; or adopting geothermal power, solar power and cogeneration technologies.

2.4       Participation in *Airport Carbon Accreditation* is entirely voluntary but the program proved to be very popular with ACI member airports because of its ability to help reduce carbon footprint and gain public recognition. To date, 126 airports have been accredited worldwide.

2.5       The program uses internationally recognized carbon reporting standards, the Greenhouse Gas Protocol, adapted to suit the operational characteristics of airports.

2.6       GHG emissions are categorized as direct and indirect under the Protocol. They are defined as follows:

- Direct GHG emissions are those from sources that are owned or controlled by the reporting entity, e.g. an airport.

- Indirect GHG emissions are those that are produced as a consequence of the activities of the reporting entity, but occur at sources owned or controlled by another entity, e.g. a power plant.

The GHG Protocol further categorizes these direct and indirect emissions into three broad scopes:

- Scope 1: All direct GHG emissions.

- Scope 2: Indirect GHG emissions from the consumption of purchased electricity, heat or steam.

- Scope 3: In the case of airports, aircraft takeoff-and-landing cycle and ground operations, ground transportation, staff business travel and waste management etc.

2.7       In November 2011, ACI Asia-Pacific adopted *Airport Carbon Accreditation*, marking the beginning of accreditations outside Europe. The following 26 airports have been accredited in the Asia-Pacific and the Middle East regions:

- o Level 1 "Mapping": Brisbane and Sydney Airports, Australia; Bahrain Airport, Bahrain; Soekarno-Hatta Airport, Indonesia; Chiang Mai, Chiang Rai, Don Mueang, Hat Yai Airports, Thailand; Abu Dhabi, Dubai, Al Maktoum and Sharjah Airports, UAE;

- o Level 2 "Reduction": Sunshine Coast Airport, Australia; Macau Airport, China; Kaohsiung Airport, Chinese Taipei; Queen Alia Airport, Jordan; Kuala Lumpur, Malaysia and Suvarnabhumi Airport, Thailand; and

- o Level 3 "Optimisation": Adelaide and Parafield Airports, Australia; Hong Kong Airport, China; Bangalore, Delhi, Hyderabad and Mumbai Airports, India and Incheon Airport, Republic of Korea.

2.8        In June 2013, September 2014 and November 2014 the programme was extended to the Africa, North America and Latin America-Caribbean regions of ACI.

2.9        To ensure its credibility *Airport Carbon Accreditation* is overseen by an independent Advisory Board, composed of representatives from international and academic institutions. The members of the board are listed in the *Airport Carbon Accreditation* website: http://www.airportcarbonaccreditation.org.

2.10        The day-to-day administration is run by a contractor, WSP UK. The administrator is responsible for registration, membership processing, label issuance and other related membership services.

2.11        In addition to providing a label for public recognition, *Airport Carbon Accreditation* offers many other benefits to airports. For example it helps airports better understand their sources of GHG emissions and build a business case for carbon emissions reduction initiatives. There are also less obvious benefits such as promoting communication between stakeholders on carbon emission and improved airport operational efficiency. Other benefits and their full details can be found at the programme's website.

2.12        *Airports Carbon Accreditation* enables the industry to track the carbon management performance of accredited airports. Based on information registered with the programme, from May 2013 to May 2014, European airports saw a reduction of 130,000 tonnes of $CO_2$ and at Asia-Pacific airports $CO_2$ emissions were down 2,000 tonnes.

2.13        Because of its proven capability as a tool to reduce carbon footprints of aerodrome operators, *Airport Carbon Accreditation* has been included in the "States Action Plan to Reduce Carbon Emissions in Aviation" for many Member States of the European Union, e.g. France, Germany and United Kingdom. In fact *Airport Carbon Accreditation* has been included in ICAO's Guidance Material for the Development of States' Action Plans as one of the examples of measures to reduce emissions.

Airport Carbon and Emissions Reporting Tool

2.14        ACI has worked with Transport Canada to develop the Airport Carbon and Emissions Reporting Tool ("ACERT"). This tool is a self-contained Excel spreadsheet that enables an airport operator to calculate its own GHG emissions inventory by inputting easily available operational data. ACERT is available at no charge to airports and can be used by non-experts.

2.15        ACERT was initially developed for small airports that did not have the resources to establish their carbon inventory independently. However this tool is equally useful for some larger airports.

2.16        Input for ACERT may be done by operations, planning or maintenance staff with no special training or expertise in carbon management.  The following information is needed:

> o   total aircraft, passenger and cargo movements;
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> o   fuel use by airport and tenant vehicles, buildings, emergency generators and fire training;
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> o   electricity and heat purchased by the airport operator and tenants;
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> o   aircraft movements categorised either by aircraft type, or total fuel dispensed to aircraft;
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> o   aircraft taxi and auxiliary power unit usage times and engine run-ups;
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> o   usage of glycol deicer (which produces carbon dioxide from the oxidation of non-methane volatile compounds); and
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> o   detailed landside traffic study or estimates of passenger and staff ground access, e.g. use of public transport and car, taxi, bus and train.

2.17        The software then generates a carbon inventory report including a summary table of GHG emissions and associated pie charts.  This report also contains detailed notes on the assumptions and caveats and provides a check-list to aid review.  It is of sufficient quality to help an airport identify energy saving initiatives and establish a GHG reduction program. ACERT (v3.0) is available for free from the ACI website at http://www.aci.aero/About-ACI/Priorities/Environment/ACERT.

2.18        While *Airport Carbon Accreditation* does not stipulate a carbon mapping model, it has been agreed that ACERT satisfies the mapping requirements at Level 1 ("Mapping") and Level 2 ("Reduction").

<u>Guidance Manual: Airport Greenhouse Gas Emissions Management</u>

2.19        In 2009 ACI published the Airport Greenhouse Gas Emissions Management Guidance Manual. This manual provides guidance for airport operators that intend to manage GHG emissions. The manual explains how an airport operator should manage GHG emissions and, if so desired, become carbon neutral and provides reference for the calculations of emissions. The Guidance Manual is available for free from the ACI website at http://www.aci.aero/Publications/Full-Publications-Listing/Guidance-Manual-Airport-Greenhouse-Gas-Emissions-Management.

## 3.    ACTION BY THE MEETING

3.1        The meeting is invited to:

> a)   Note the importance of *Airport Carbon Accreditation* and ACERT as tools to assist airports in managing and reducing carbon emissions;
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> b)   Encourage their aerodrome operators to adopt ACERT and participate in *Airport Carbon Accreditation*; and
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> c)   Include *Airport Carbon Accreditation* into their State Action Plans.

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