

# ANNUAL REPORT

## 2010-2011

June 2011



airport  
carbon  
accreditation

MAPPING | REDUCTION | OPTIMISATION | NEUTRALITY



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# Preface

We are proud to release the second edition of the **Airport Carbon Accreditation Annual Report**, which documents airports' activities to better manage and reduce their CO<sub>2</sub> emissions during the second year of operation of **Airport Carbon Accreditation**.

Over the course of 'year 2', which ended in May 2011, **Airport Carbon Accreditation** has built on the successes of its accredited airports, with a total of 43 airports now accredited representing 43% of European air traffic, or over 600 million passengers.

This report outlines some of the background to the development of **Airport Carbon Accreditation**, the programme requirements and the benefits of participation. It also presents data on the aggregate emissions of accredited airports, and showcases examples of best practise in the field of carbon management alongside airports' experiences of the accreditation process. The latter sections of the report also summarise some of the key issues that have been addressed during the year to ensure that **Airport Carbon Accreditation** adapts to the needs of airports whilst at the same time reflects current conventions in greenhouse gas emissions reporting.

Our vision for the future is that as participation in the **Airport Carbon Accreditation** increases over time, this report will become essential reading for all in the airport community concerned to set best practice in the management and reduction of their carbon emissions.

This report was prepared by the **Airport Carbon Accreditation** Administrator (WSP Environment and Energy) and was reviewed and approved by the **Airport Carbon Accreditation** Advisory Board on 17<sup>th</sup> May 2011.

## **Olivier Jankovec, Director General, ACI EUROPE**

*"Year Two has been an exceptionally busy one for **Airport Carbon Accreditation**. The number of accredited airports has more than doubled, with a wide range of some of the busiest airports in Europe in the programme. This success is testament to the business transformation of airports here in Europe, for which ambitious environmental management is essential to delivering efficient and sustainable airport operations. We are extremely grateful that both European Commission Vice-President Kallas and UNEP have lent their support to **Airport Carbon Accreditation**, recognising the value of the programme as an example of how an industry can lead the way."*

## 1.1. Background to the development of Airport Carbon Accreditation

European airports have been actively dealing with environmental concerns on an individual basis for decades, focusing primarily on local impacts in relation to noise, air quality, water and biodiversity. The global nature of climate change has given a new kind of exposure and challenge to industries that are perceived to have a high environmental impact or significant emissions sources.

According to the Intergovernmental Panel on Climate Change 4th Assessment Report (2007), aviation contributes around 3% of the anthropogenic radiative forcing in 2005, but it is recognised that this proportion is likely to increase over time. It is estimated that airport activities account for up to 5% of total aviation emissions, while 95% of these emissions are related to international flights. As of 1<sup>st</sup> January 2012, CO<sub>2</sub> emitted from flights departing from and arriving to the European Union will be covered by the EU ETS.

Along with other aviation industry stakeholders, European airports are seeking to address the challenge of climate change and have developed a wide range of activities to reduce carbon emissions linked to airport operations. These emissions stem mainly from: energy use in airport buildings and infrastructure; transport to/from airports; airside vehicles; aircraft ground movements and energy consumption and refrigerants.

To further engage the airport industry towards active carbon management with the objective of achieving carbon neutrality, a co-ordinated industry response is required. Such response needs to demonstrate the evolutionary approach of European airports to emissions management.

In June 2008, the annual assembly of ACI EUROPE adopted a landmark resolution on Climate Change (The "Paris Resolution") whereby its member airports committed to reduce carbon emissions from their operations, with the ultimate goal of becoming carbon neutral. In June 2009 ACI EUROPE launched **Airport Carbon Accreditation**, a certification programme setting an industry standard for carbon mapping and carbon management at airports. **Airport Carbon Accreditation** allows the assessment and recognition of participating airports' efforts to manage and reduce their CO<sub>2</sub> emissions, with the aim of securing sustainable future growth on a collective and individual basis.

**Airport Carbon Accreditation** is an independent programme administered by WSP Environment & Energy, an international consultancy appointed by ACI EUROPE to enforce the accreditation criteria for airports and report on programme developments on an annual basis.

This report provides: a summary of the requirements for, and benefits of, participation in **Airport Carbon Accreditation**; an overview of participation in year 2 of the programme, including aggregate emissions data and case studies of airports' emissions reduction activities; an overview of upcoming issues during year 2; and a look towards the future.



## 1.2. Aims of Airport Carbon Accreditation

**David McMillan, Director General, EUROCONTROL (Spring 2010)**

*"I'm very encouraged by **Airport Carbon Accreditation**. It's a practical approach which many airports are already embracing. It's important that we tackle this issue - not only by measuring the carbon impact that an airport has, but also by taking realistic steps to reduce that footprint.*

*The involvement of ACI EUROPE is invaluable. It brings not only the potential for benchmarking and for spreading best practice, but also a system of independent verification which helps ensure that the public can have confidence in the results."*

**Airport Carbon Accreditation** has been developed to assess and recognise airport efforts to manage and reduce their greenhouse gas emissions. The programme is intended to set an example of corporate leadership and responsible business practice. It is the only airport industry specific, performance-based, voluntary, pan-European and institutionally endorsed certification programme and accreditation label. It is hoped that as more airports become **Airport Carbon Accredited**, the programme will increasingly:

- Provide a framework under which airports can reduce their climate change impacts and improve operational performance, not only for emissions sources under their direct control but also through the recognition that it is necessary to collaborate with other stakeholders in the aviation industry in order to achieve further emissions reductions.
- Incentivise the development of management practices that support the principles of carbon neutrality in line with ACI EUROPE policy goals.
- Provide recognition of improved performance in carbon and energy management, and real reductions in emissions through the attainment of accreditation at different levels.
- Enable airports to gain public recognition of their achievements, notably from the regulatory and environmental communities, both on an individual and collective basis.

**Jost Lammers, Budapest Airport Chief Executive (March 2011)**

*"We now know that the less CO<sub>2</sub> emissions we make, the nearer we are to a sustainable economic and social model of development. We want to reach our long term goal of carbon neutral operations for our airport."*

### 1.3. Airport Carbon Accreditation participation requirements

**Airport Carbon Accreditation** acknowledges that airports are at a number of different points on their journey towards comprehensive carbon management and carbon neutrality. The step-by-step process encourages airports to reduce their carbon emissions with the ultimate goal of carbon neutral operations.

The four levels of **mapping, reduction, optimisation** and **neutrality** provide airports with a common framework within which to focus their efforts, depending on existing experience of carbon inventory preparation and management.

Reporting standards are based on established greenhouse gas accounting methodologies, such as the World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) Greenhouse Gas Protocol, as well as airport specific standards such as the International Civil Aviation Organisation's (ICAO) definition of the Landing-Take Off cycle and other airport specific guidance in carbon footprinting and management.

Airports must have carbon footprints independently verified in accordance with ISO14064, for which evidence must be provided to the **Airport Carbon Accreditation** Administrator. All claims regarding carbon management processes must also be independently verified.

## To become Airport Carbon Accredited, an airport must fulfil the following criteria at each level.



### 1 MAPPING

Determine its 'operational boundary' and the emissions sources within that boundary which are Scope 1 and Scope 2 sources.

Collect data and calculate the annual carbon emissions for the previous year for those sources.

Compile a carbon footprint report.

Engage an independent third party to verify the report before submission, to ensure that the carbon footprint calculation is in accordance with ISO14064 and accreditation requirements.

Demonstrate evidence of policy commitment to emissions reduction that is signed off at the highest management level at the airport.



### 2 REDUCTION

Fulfill all the requirements of 'Mapping'.

Demonstrate evidence of the implementation of a carbon management plan at the airport that includes the following:

- A senior committee or body has responsibility for climate change/carbon/energy matters.
- Communication on emissions performance to relevant stakeholders.
- Procedures for preparing and checking an accurate carbon footprint.
- Monitoring consumption of fuel & energy.
- Development carbon/energy reduction targets.
- Programmes or control mechanisms to ensure operations minimise emissions.
- Consideration of the emissions impact of investments.
- Awareness training on emissions for staff.
- A process of self assessment & auditing to monitor progress of improvement delivery.

Demonstrate a reduction in CO<sub>2</sub> against a rolling three year average of scope 1 & 2 emissions.



### 3 OPTIMISATION



Fulfil all the requirements of 'Mapping' and 'Reduction'

Widen the scope of its carbon footprint to include a range of Scope 3 emissions including:

- Landing and take-off cycle emissions.
- Surface access to the airport for passengers and staff.
- Staff business travel emissions.
- Any other Scope 3 emissions which the airport chooses to include.

Demonstrate evidence of stakeholder engagement with third parties in order to reduce emissions from scope 3 sources that the airport can guide and influence. Required evidence of stakeholder engagement includes:

- Identification and categorisation of stakeholders the airport can guide and influence.
- Allocation of clear roles and responsibilities for engaging with stakeholders and facilitating partnerships.
- Details of communications and training provided to stakeholders.
- A clear implementation plan of the intended approach to engaging with stakeholders including proposed actions and timings.

### 4 NEUTRALITY



Fulfil all the requirements of 'Mapping', 'Reduction' and 'Optimisation'

Offset emissions from those sources over which it has direct control, using internationally recognised offsets.



## 1.4. The benefits of participation

**Colin Matthews, BAA Chief Executive (Autumn 2010)**

*"If you do not effectively measure and benchmark energy use, you cannot reduce it, but that is exactly what we are doing. This accreditation is an important milestone as we seek to make every journey better... I am delighted that the great lengths that all our staff go to have been recognised."*

In order to achieve the goals above, there must be a clear business case for airports to participate in the programme. Furthermore, there must be an incentive for airports to progress through the different levels of **Airport Carbon Accreditation** in order to show that carbon management and collaboration with stakeholders on emissions management is being embedded across the industry.

It is difficult to provide generic quantitative information on the benefits of participation, as much of this information is of a commercially sensitive nature to airports. Information specific to individual airports is available in the 'case studies' section of this report. However, there is no comprehensive qualitative overview of the benefits of participation.

In the inaugural **Airport Carbon Accreditation** Annual Report published in June 2010, a list of benefits of participation was provided based on feedback obtained from airports and in consultation with the **Airport Carbon Accreditation** Advisory Board. These benefits include:

- Supporting the sustainability of future growth.
- Helping to deliver significant financial benefits through the implementation of measures to improve energy efficiency.
- Provision of a vehicle for the exchange of information and development of best practice.
- Increasing the airport's public profile and credibility, whilst also contributing positively to the public reputation of the airport industry.

With a greater body of evidence to draw from in year 2, this list has been expanded to show the differing benefits of participation at each level of accreditation.

## Benefits of participation at level 1

Data collation and verification ensures that a clear understanding of emissions sources at the airport is developed, enabling the airport to identify priority areas for emissions reduction.

Carbon data provides detailed information to support the development of the business case for emissions reduction initiatives for sources under the airport's direct control.

Exercise promotes dialogue between airport personnel and departments on issues relating to CO<sub>2</sub> emissions.

Sends an early signal that airport is addressing the climate change agenda, largely as set by third parties, which is enhanced by the high level policy commitment to emissions reduction.

## Benefits of participation at level 2

Adoption of a systematic approach to carbon management at the airport ensures that information and data flows are managed in an efficient way.

Improved airport performance through operational cost savings from energy efficiency measures, enhanced controls, new plant and equipment.

Achievement of real, verified emissions reductions gives further credibility to claims made by the airport in the public domain.

Supports dialogue with stakeholders on reduction in emissions from sources that an airport can guide and influence.

## Benefits of participation at level 3 / 3+

Collaborative engagement with stakeholders helps an airport and its stakeholders move beyond compliance towards a more strategic and comprehensive approach to carbon management.

Improved emissions performance and operational / cost efficiencies not only for the airport itself, but also for third parties responsible for emissions sources at the airport.

Aligns airport with wider requirements for emissions reduction that may exist due to local planning conditions, thus supporting airport growth objectives.

Differentiates the airport as a leader in the field of carbon management, by generating an enhanced public image and improved community relations.

Reduced regulatory and litigation risks and enhanced planning and regulatory approvals.

Increased shareholder value, brand reputation and stakeholder support.

Airport sets its own carbon reduction agenda.



## 1.5. The Administrator

The **Airport Carbon Accreditation** Administrator provides a range of services to assist airports with participation and ensure the smooth running of the **Airport Carbon Accreditation**. Responsibilities include:

- Development and periodic update of documentation and guidance to enable applicants to prepare applications.
- Provision of helpline support to airports to answer technical and general enquiries about the programme.
- Review of new applications, upgrades and renewals.
- Collation of data and preparation of the **Airport Carbon Accreditation** Annual Report.
- Preparation of data for review by **Airport Carbon Accreditation** Advisory Board.

## 1.6. The Advisory Board

The administration of **Airport Carbon Accreditation** is overseen by an independent Advisory Board comprised of many distinguished, independent experts from the fields of aviation and the environment.

Participation has come from institutions that have endorsed the programme as well as other relevant organisations that have expressed an interest.

Members play an active role in monitoring the progress of **Airport Carbon Accreditation** based on defined terms of reference.

The Advisory Board membership is comprised of:

- Mr Patrick Gandil, ECAC (European Civil Aviation Conference) Focal Point on Environment and Director General of Civil Aviation (France)
- Mr David McMillan, Director-General, EUROCONTROL
- Mrs Martina Otto, Head of Policy Unit – Energy Branch, UNEP (United Nations Environment Programme)
- Mr Matthew Baldwin, Director of Air Transport, European Commission
- Mr Damien Meadows, Head of Unit “International Carbon Market, Aviation and Maritime”, European Commission
- Mr Olivier Rapf, Head Climate Business Engagement, World Wide Fund International
- Professor Callum Thomas, Centre for Air Transport and the Environment at Manchester Metropolitan University

The Advisory Board met twice during year 2, in December 2010 and May 2011.

## 2.1. Participation highlights

	2009-2010	2010-2011
Number of airports	17	43
% of European air traffic	21%	43%

- All airports accredited during year 1 successfully renewed their accreditation in year 2
  - 7 airports upgraded from the level achieved in year 1
  - 10 airports remained accredited at the same level
- A further 26 airports became accredited for the first time during year 2

## 2.2. Accredited airports as of 14<sup>th</sup> May 2011

Level 1: Mapping		
	Organisation	Airport
1	ANA	Faro
2	ANA	Flores
3	ANA	Horta
4	ANA	Lisbon
5	ANA	Porto
6	ANA	Ponta Delgada
7	ANA	Santa Maria
8	Bologna Guglielmo Marconi Airport	Bologna
9	Budapest Airport Zrt.	Budapest
10	Chisinau Airport	Chisinau
11	DAA	Cork
12	DAA	Dublin
13	DAA	Shannon
14	Dubrovnik Airport	Dubrovnik
15	Eindhoven Airport	Eindhoven
16	TAV	Ankara Esenboğa
17	TAV	Istanbul Ataturk
18	TAV	Izmir Adnan Menderes
19	Ruzyne-Prague Airport	Prague
20	Toulouse-Blagnac Airport	Toulouse Blagnac

### Level 2: Reduction

	Organisation	Airport
1	Aéroports de Paris	Paris Charles de Gaulle
2	Aéroports de Paris	Paris Orly
3	AIA	Athens
4	Avinor	Kristiansand
5	Brussels Airport	Brussels
6	Fraport AG	Frankfurt
7	Gatwick Airport	London Gatwick
8	Hamburg Airport GmbH	Hamburg
9	ICF Airports	Antalya
10	TAG	Farnborough

### Level 3: Optimisation

	Organisation	Airport
1	BAA	London Heathrow
2	Manchester Airport Group	Manchester
3	Munich Airport GmbH	Munich
4	Schiphol Group	Amsterdam
5	Zurich Airport GmbH	Zurich

### Level 3+: Neutrality

	Organisation	Airport
1	Avinor	Trondheim
2	Avinor	Oslo
3	SEA Milan	Milan Linate
4	SEA Milan	Milan Malpensa
5	Swedavia	Göteborg Landvetter
6	Swedavia	Stockholm Arlanda
7	Swedavia	Stockholm Bromma
8	Swedavia	Umea City

## 2.3. Aggregate carbon footprint and emissions reduction figures

This section outlines the aggregate carbon (CO<sub>2</sub>) footprint and reduction figures achieved by the 43 airports listed above. These figures derive from individual airports' applications, as verified externally according to **Airport Carbon Accreditation** requirements.

Every attempt has been made to provide an accurate quantification of the actual emissions reductions achieved, with emissions compared on a like-for-like basis against a three year rolling average of emissions. Whilst this data is presented in aggregate format, there are a number of issues associated with the aggregation process that mean direct comparisons between airports are not possible. These issues include:

- Newly accredited airports may not have three years of historical data available. The programme therefore recognises that until such data is available, airports can measure reductions against either one or two years of data.
- Operating conditions of each airport differ significantly due to the varying ownership structures and activity scopes. As **Airport Carbon Accreditation** requires participants to report on emissions from sources under the airports direct control, each airport's operational boundary is unique to that airport.
- Reductions must be achieved on a like-for-like basis, meaning that new facilities at airports may not be included in the operational boundary for the purposes of demonstrating a reduction in emissions. Where this is the case at an airport, that airport will have to incorporate the new facility into the carbon footprint for the purposes of demonstrating a reduction in emissions.
- The use of the three year rolling average means that it is not possible to aggregate the total emissions reductions between years, as this will lead to the double counting of some emissions sources.

Under the terms and conditions of participation in **Airport Carbon Accreditation**, the details of airports' individual carbon footprints are not published here, although an airport may choose to do so itself.

**Airport Carbon Accreditation** requires that airports report on CO<sub>2</sub> emissions only. Under the programme, airports may report voluntarily on other greenhouse gases, and this is considered as best practice.

The reductions achieved by the airports participating in **Airport Carbon Accreditation** are genuine quantified reductions in CO<sub>2</sub> emissions achieved when comparing emissions on a like-for-like basis, despite traffic trends. They show a general downward trend and should be regarded as quantified and qualitative evidence of improved carbon management practices by the airports concerned.

The aggregated emissions from all participants together with their supporting data has been examined and approved by the Advisory Board and are presented in the tables below:

	2009-2010	2010-2011
Total aggregate scope 1 & 2 reduction (tCO <sub>2</sub> )	51,657	54,565
Total aggregate scope 3 reduction (tCO <sub>2</sub> )	359,733	675,124

Variable	Year 1		Year 2	
	Emissions	Number of Airports	Emissions	Number of Airports
Aggregate carbon footprint for 'year 0' <sup>1</sup> for emissions under airports' direct control (all airports)	803,050 tCO <sub>2</sub>	17	2,275,469 tCO <sub>2</sub>	43
Carbon footprint per passenger	2.6 kg CO <sub>2</sub>		3.73 kg CO <sub>2</sub>	
Reduction in emissions from sources under airports' direct control (Level 2 and above) <sup>2</sup>	51,657 tCO <sub>2</sub>	9	51,819 tCO <sub>2</sub>	19
Carbon footprint reduction per passenger	0.351 kg CO <sub>2</sub>		0.11 kg CO <sub>2</sub>	
Total carbon footprint for 'year 0' for emissions sources which an airport may guide or influence (level 3 and above)	2,397,622 tCO <sub>2</sub>	6	6,643,266 tCO <sub>2</sub> <sup>3</sup>	13
Reductions from emissions sources which an airport may guide or influence <sup>3</sup>	359,733 tCO <sub>2</sub>		675,124 tCO <sub>2</sub>	
Total emissions offset (Level 3+)	13,129 tCO <sub>2</sub>	4	85,602 tCO <sub>2</sub>	8

<sup>1</sup> 'Year 0' refers to the 12 month period for which an individual airport's carbon footprint refers to, which according to the **Airport Carbon Accreditation** requirements must have been within 12 months of the application date.

<sup>2</sup> This figure includes increases in emissions at airports that have used a relative emissions benchmark in order to demonstrate a reduction.

<sup>3</sup> These emissions sources are those detailed in the guidance document, plus any other sources that an airport may wish to include. For comparison, the emissions from sources that the same 6 airports are able to control were 1,275,432 tonnes CO<sub>2</sub>.



This section illustrates some of the work that participating airports are doing in the field of carbon management, as well as some of the experiences of the accreditation process. Examples have been chosen from airports at a range of levels and geographies. It is anticipated that as best practice develops this section will form an increasingly important part of future reports, and will support the process of information exchange that has been established already.

## 3.1. Developing a carbon footprint for the first time at Chisinau Airport



Chisinau International Airport (KIV) is the largest airport in the Republic of Moldova with annual passenger traffic numbers nearly 1 million passengers per year. KIV developed a carbon footprint for the first time in 2010 and achieved accreditation at level 1, or Mapping. KIV was the first airport accredited in the Commonwealth of Independent States.

### Developing a footprint for the first time

As few airports in Eastern Europe have developed carbon footprints or participated in **Airport Carbon Accreditation**, Chisinau International Airport had limited scope for taking advantage of the learnings of similar airports. As a result, the challenge of defining the airport's organisational boundary, differentiating between direct and indirect emissions sources, and identifying emissions factors where GHG inventories are less common than in other parts of Europe, proved a challenge.

Chisinau also reports that, having achieved level 1 of **Airport Carbon Accreditation**, the communication of this achievement also proved challenging. Public understanding of airport environmental issues in the Republic of Moldova is higher in the more 'traditional' area of noise pollution, whilst awareness of carbon accounting is more limited. Becoming accredited therefore provided Chisinau with a great opportunity to educate the public about the importance of climate change and carbon accounting.

### The future

**Mircea Manoli, Project Coordinator, Chisinau International Airport**

*"Receiving the accreditation for Mapping has encouraged us to continue our efforts in reducing our direct emissions, whilst it has also helped us in our discussions with other important stakeholders including our airlines, ground handling operators and taxi companies (among others) in reducing their direct emissions. During 2011 we will be implementing an energy management system at KIV in order to help reduce emissions at the airport from electricity and heat consumption."*

## 3.2. The importance of carbon management to Bologna Airport's expansion plans



Bologna Airport (BLQ) handles over 6m passengers per year, and projects a doubling of traffic numbers by 2023. BLQ became accredited for the first time in year 1 at the Mapping level, and successfully renewed its accreditation during year 2.

### Learning from experience

**Tomaso Barilli, Sustainability & Environment Department**

*"As a relatively small airport with a straightforward infrastructure set-up, calculation of the carbon footprint for the renewal application was fairly simple. In the first year, we worked hard to identify all our emissions sources and define them correctly using the programme guidance. For the renewal, the reporting structure was already in place to enable us to carry out our footprint calculations."*

### Bologna Airport and Bologna's masterplan

Bologna Airport is in the process of defining its Carbon Management Plan, which should include a new cogeneration plan for energy production (heat, cool and electricity), and having done several interventions on existing plants and infrastructures, e.g. replacing old boilers with new generation condensing plants, installing LED lights, and electric handling vehicles.

Further to these direct interventions, the projected long term growth of Bologna Airport is acknowledged not only through the airport's own Masterplan, but also in the Territorial Planning Agreement (TPA) promoted by the Province of Bologna. One of the principal aims of the TPA is to promote the further integration of Bologna Airport expansion (including a new second terminal) into the existing public transport infrastructure. Within the TPA, a series of environmental conditions have been fixed, including a reduction in carbon emissions related to airport activities.

The City of Bologna has also defined its first Energy Efficiency Plan: as a part of this plan, Bologna Airport is required to undertake a series of actions to optimise energy consumption and reduce GHG emissions, in line with regional law. Bologna Airport's ability to expand within the constraints of the local planning system is therefore highly dependent on the achievement of emissions reductions.



### 3.3. Reducing energy consumption at Kristiansand Airport



#### AVINOR

Kristiansand Airport is situated on the outskirts of the city of Kristiansand, in southern Norway. The airport is part of the AVINOR group, which operates 46 airports in Norway. Kristiansand Airport serves the region with domestic and international flight, handling over 850,000 passengers per year. Kristiansand Airport had been monitoring its carbon footprint along with other Avinor airports for a few years prior to achieving level 2, or Reduction.

#### Preparing for the application:

Although Kristiansand Airport had been accounting for its emissions for a number of years, in preparation for application it was necessary to develop a more formal approach to carbon management at the airport that focussed on:

- The development of an action plan to reduce emissions;
- Establishing an environmental committee to coordinate the work; and
- Delegating responsibility to employees.

Airport representatives have commented that formalising the approach to carbon management in this way, with **Airport Carbon Accreditation** as a focus, increased staff enthusiasm both for achieving emissions reductions and economic savings.

In addition to the above, Kristiansand Airport asserts that ensuring all emissions sources were accounted for in line with the scheme requirements was not always straightforward:

#### **Thomas Langeland, Airport Director, Avinor**

*“One of the greatest challenges in the accreditation process was to document the consumption of fuel for the base year. We discovered that the airport did not have the appropriate procedures for registration of the level in fuel tanks at the end of the year in place. On recommendation of our verifier, we were able to estimate fuel consumption based on other sources including invoices and assumptions of share of delivery to the different tanks. In the future we hope to automate the fuel registration procedures, and our advice to other airports considering accreditation would be to ensure registration of fuel levels at the turn of the year!”*

## Short and long term reduction initiatives at the airport:

Kristiansand is consistently working to achieve emissions reductions in line with its targets and has several activities on-going. Emissions from vehicles represent a significant percentage of the carbon inventory at Kristiansand. Currently, key areas of focus include:

- A communications programme to reduce idle running, complemented by eco-driving courses.
- Training on ignition procedures for fire drills for selected operators.
- Implementing new fuel monitoring technology in all vehicles.
- Vehicle maintenance and servicing with the aim of improving vehicle efficiency.

In the medium to long term, the airport has an investment plan in place to ensure that the current fleet (considering both administrative and heavy vehicles) will ultimately be replaced by low emitting models, vehicles that permit the use of alternative second and third generation biofuels, and the introduction of electric powered vehicles.

Other long term projects at the airport to reduce emissions include the investment in thermal energy supply at the airport. The proposed system will use a heat exchanger to provide heating and cooling to the terminal and other buildings using seawater from the nearby Topdalsfjord. Kristiansand is carrying out a research and development project with an industrial partner to investigate using the heat from the system to heat aircraft at their stands when parked at night. This also has potential for significantly reducing consumption of electricity.

### 3.4. Stakeholder engagement activities at London Heathrow Airport

## BAA Heathrow

London Heathrow Airport (LHR) is the busiest airport in the European Union in terms of passenger traffic and the second busiest in terms of traffic movements. LHR became **Airport Carbon accredited** at the Level 3, or Optimisation Level for the first time in 2010, and has also achieved the Carbon Trust Standard in the UK.

### Introduction to the Aircraft on the Ground CO<sub>2</sub> Reduction programme (AGR)

AGR was developed by Heathrow and other aviation industry stakeholders working collaboratively through the Sustainable Aviation Partnership. The programme is designed specifically for airports and identifies areas in airport ground operations where there is potential for CO<sub>2</sub> savings, as well as outlining an action plan for achieving potential reductions.

The AGR is being managed by the Airport Operators Association (AOA) and was formally launched in June 2010, whilst the Clinton Climate Initiative also provided input to development of the scheme. At launch of the programme 15 UK airports signed up, covering up to 70% of all UK flights.

### Stakeholder emissions reductions through AGR at Heathrow

The programme was developed using Heathrow's carbon footprint as a case study, with a module each on reducing engine taxi times and reducing the usage of auxiliary power units (APUs). Aircraft on the ground are responsible for 0.55m tonnes CO<sub>2</sub> per year (or 25%) of a total carbon footprint at LHR in 2010 of 2.2m tonnes.

For each module the programme provides a menu of pragmatic action steps which airports may adopt to help with the reduction of ground based CO<sub>2</sub> emissions. Broadly the action steps fall under the following headings:

- Measuring emissions
- Planning reduction initiatives
- Assessing and delivering those initiatives
- Monitoring and reviewing those initiatives

LHR is currently working through the action steps with its various stakeholders in relation to both modules and regularly updates AOA with its progress.

The study behind the AGR showed that the aviation industry in the UK has already implemented significant efficiency improvements to reduce emissions from aircraft on the ground. When measured against a business-as-usual scenario, AGR suggests a saving of 100,000 tonnes CO<sub>2</sub> per annum at Heathrow today, with a further future savings potential of 20-40%.

## Other stakeholder engagement programmes

Stakeholder engagement at Heathrow is not limited to the AGR programme and the Sustainable Aviation Partnership. Further examples of efforts in this area includes:

- Being a founder member of the Aviation Global Deal group (with members including British Airways, Cathay Pacific, Air France, and NGO The Climate Group), who have sought to develop a policy approach for managing aviation's global emissions.
- Supporting mandatory carbon reporting through membership of the Prince of Wales Climate Change Leadership Group.
- Working with NATS and airlines to develop a Departure and Ground Operations Code of Practice (DCOP) to promote operational techniques for reducing fuel burn, CO<sub>2</sub> emissions, NO<sub>x</sub> emissions and noise levels on the ground. The DCOP is intended to build on the successes of the Arrivals Code of Practice, which was first published in February 2002 and revised in 2006.



### 3.5. Manchester Airport Carbon Challenge



Manchester Airport is part of Manchester Airports Group (MAG) which is the UK's largest domestically-owned airport operator. Manchester Airport serves more than 18 million passengers annually and in Year 2 Manchester upgraded from Level 2 to Level 3 accreditation.

#### The Manchester Airport Carbon Challenge

Manchester Airport plc is responsible for approximately 70% of the energy use and has made progress in reducing its own energy and fuel use (scope 1 and 2 emissions). One of Manchester airport's objectives is to be carbon neutral by 2015. In order to achieve this one of the initiatives launched at the airport is the Manchester Airport Carbon Challenge in 2010 which is a programme aimed at working with service partners at the airport site to reduce their emissions.

#### About the Manchester Airport Carbon Challenge

This programme targets approximately 300 other businesses located at the airport, which are responsible for 30% of energy and fuel usage at the airport. 30 of these stakeholders are responsible for 20% of the energy utilized at Manchester Airport, however the programme is open to all stakeholders located at the airport.

The Challenge has 5 steps, which each partner commits to, with a major benefit of the Challenge being knowledge-sharing across the Airport partnership.

The programme incorporates facilitating a website, half yearly workshops and an annual conference for stakeholders. Currently, 10 businesses are signed up for the programme, all of which have committed to measure and reduce their carbon emissions, which are collectively responsible for 7% of the energy consumed at the airport. The 10 stakeholders include retailers, a freight forwarder, a hotel and an in-flight caterer. Each business chooses its own reduction target.

# 4 Programme developments during year 2

Both ACI EUROPE and the Programme Administrator acknowledge that the requirements of **Airport Carbon Accreditation** must be reviewed and updated on an on-going basis to ensure that the programme reflects current best practise and established methodologies in carbon reporting and management.

Feedback from participating airports and the **Airport Carbon Accreditation** Advisory Board is also used to ensure that any changes to the programme requirements are implemented in a manner that is suitable for airports.

The key areas of development during year 2, below, are summarised in this section:

- Seeking further institutional recognition for the programme.
- Taking a more consistent approach to the communication of airports' achievements.
- Updating the **Airport Carbon Accreditation** requirements through the on-going review and amendment of the programme documentation.

## 4.1. Institutional recognition of Airport Carbon Accreditation

A key component of **Airport Carbon Accreditation**

Further to the engagement with aviation industry experts through the **Airport Carbon Accreditation** Advisory Board, ACI EUROPE has worked to secure institutional support for the programme through proactive dialogue with representatives from the European Commission and the United Nations Environment Programme. The robust nature of the data provided by participating airports, and their efforts to reduce carbon emissions in a structured manner, are supported by the feedback below:

### **Achim Steiner, Executive Director, United Nations Environment Programme (February 2011)**

*"I applaud Airports Council International (ACI) Europe for having set up **Airport Carbon Accreditation**, an initiative that demonstrates commitment to reduce the carbon footprint of airports and eventually to become carbon neutral. The programme reflects the different steps required to reducing emissions: to measure emissions and identify areas for action, to reduce the intensity of operations and invest in renewable energy options, and to take responsibility also beyond the area of direct influence by promoting change throughout the industry's supply chain. **Airport Carbon Accreditation** provides a tool for airports both to manage their emissions and to communicate about improvements. I encourage all airports to embrace the challenge of reducing its carbon footprint."*

### **Siim Kallas, European Commission Vice-President in charge of Transport (December 2010)**

*"In transport, sustainability is not an 'optional extra' – it has to come as standard. We can only succeed in tackling climate change if the actions of regulators are complemented by citizens and businesses taking their own action... I believe that **Airport Carbon Accreditation** is playing a crucial role in helping move European aviation onto a more sustainable footing."*



**Patrick Gandil, Vice President and Focal Point for Environmental Matters of the European Civil Aviation Conference (ECAC) (Spring 2011)**

*"Airport Carbon Accreditation provides a very useful tool to measure CO<sub>2</sub> emissions, and it allows for a common method to be used across Europe. Airport Carbon Accreditation paved the road to carbon footprint calculators that the European White Paper on transport clearly urges."*

## 4.2. Improving on the communication of airports' achievements

ACI EUROPE has worked with accredited airports on a number of levels to promote the availability of information on **Airport Carbon Accreditation**. The following methods have all been used to assist airports in the communication of their accreditations and work in the field of emissions reduction:

- Certificate presentation ceremonies at some airports upon achievement of accreditation.
- Press releases by ACI EUROPE to keep media sources updated on participation, and articles in **Airport Business Magazine**.
- Maintenance of list of accredited airports on programme website [www.airportcarbonaccreditation.org](http://www.airportcarbonaccreditation.org) and 'news' feature to provide updates on new accreditations.
- Development of an **Airport Carbon Accreditation** Facebook page.
- **Airport Carbon Accreditation** also has a dedicated page on Wikipedia [http://en.wikipedia.org/wiki/Airport\\_Carbon\\_Accreditation](http://en.wikipedia.org/wiki/Airport_Carbon_Accreditation).
- Where requested, provision of **Airport Carbon Accreditation** banners for display in terminals to complement the suite of online banners already available. Airports participating in the "banner project" are: Brussels Airport, Milan-Linate Airport, Milan-Malpensa Airport, Stockholm-Arlanda Airport, Umea Airport, Izmir Adnan Menderes Airport, Istanbul-Ataturk Airport, Athens International Airport, Antalya Airport.
- Delivery of an **Airport Carbon Accreditation** communications workshop on 17 March 2011. A key emerging issue as the number of participating airports has increased is the necessity to ensure that accredited airports communicate on their achievements in a consistent manner. In addition, potential pitfalls exist where airports' marketing representatives may not understand the programme requirements in the same way as the environmental teams that put together the application. The workshop delivered by ACI EUROPE covered a wide range of issues around the following topics:
  - Guidance on the development of press releases and other external communications.
  - Guidance on internal communications and the use of **Airport Carbon Accreditation** to engage with stakeholders at the airport.
  - Clarification of terminology to be used when communicating about **Airport Carbon Accreditation**.



Dedicated e-Newsletter about the programme



Banner developed for display in terminals of participating TAV airports



Presentation of Aéroports de Paris' level 2 accreditation certificates (from left: Olivier Jankovec, Director General, ACI EUROPE; Siim Kallas, European Commission Vice President in charge of Transport; and Pierre Graff, Aéroports de Paris President & Director General).



### 4.3. Ongoing review of Airport Carbon Accreditation requirements and documentation

ACI EUROPE and the Programme Administrator obtain feedback on **Airport Carbon Accreditation** from a range of different sources throughout the year. The following communication channels are in place, with the aim of ensuring that feedback is used to drive improvements in the running of the programme:

- Consultation with European airports through the **Airport Carbon Accreditation** Taskforce, which convened twice during year 2 and is attended by accredited and non-accredited airports.
- Discussion of key issues with the **Airport Carbon Accreditation** Advisory Board.
- Discussions between the Programme Administrator and airport representatives through the **Airport Carbon Accreditation** helpdesk.
- Discussions between ACI EUROPE and airport representatives on an ad-hoc basis.
- Other ad-hoc communications with aviation industry stakeholders, institutions and the media.

During year 1, the sources above highlighted a number of issues as airports became accredited for the first time. Changes were made to standard operating procedures and the programme documentation to ensure that the accreditation process would run as smoothly as possible, for example:

- Provision of an **Airport Carbon Accreditation** FAQ document on the programme website to complement existing guidance.
- Adjustment renewal procedures to ensure a rolling 12 month accreditation period.
- Changing the verification requirements from an annual to every second year of accreditation.
- Amendment of participation terms and conditions to enable scrutiny of airports carbon data by the Advisory Board.

In year 2, new developments have led to further adjustments to the **Airport Carbon Accreditation** requirements, guidance and standard operating procedures, as summarised in the table p25.



Issue / Description	Response
<p><b>Need for airports to progress through the programme levels</b>            Representatives of the <b>Airport Carbon Accreditation</b> Advisory Board highlighted that whilst the structure of the programme enables airports with varying experience of carbon management to achieve accreditation, long term participation at the Mapping stage would not necessarily lead to emissions reductions as airports only have to provide a carbon footprint at this level. Although the achievement of level 1 is an important first step, it was suggested that airports should be encouraged to progress to level 2 and above.</p>	<p>An additional requirement for a carbon / energy reduction policy has been incorporated into the Mapping requirements. This had already been a requirement at level 2 and above. The policy must contain a clear commitment to emissions reduction and be signed off at the highest management level at the airport. Whilst there is no time limit on continued accreditation at level 1, airports are encouraged to progress to level 2 both by the Programme Administrator and ACI EUROPE. The willingness of airports to progress is evidenced by the fact that during year 2, 10 airports have upgraded to a higher level of accreditation.</p>
<p><b>Accounting for renewable electricity</b>            It was identified that <b>Airport Carbon Accreditation</b> requirements did not provide sufficiently explicit detail on the reporting of electricity from renewable sources that was consistent with newly published reporting guidance (e.g. WWF, UK government). The Advisory Board therefore recommended that additional information be provided in the guidance document to ensure that airports report their emissions in line with current reporting norms.</p>	<p>New material has been added to the <b>Airport Carbon Accreditation</b> Guidance Document to clarify the reporting requirements and ensure that the programme is consistent with existing reporting practices. This details the specific scenarios when airports are able to deviate from the national grid average emissions factor.</p>
<p><b>Incorporating flexibility into the scope 1 &amp; 2 emissions reduction requirements at level 2 and above</b>            Feedback from airports has highlighted that there are a range of factors outside the control of the airport that may adversely affect the ability of an airport to demonstrate a CO<sub>2</sub> reduction against a three year rolling average of their scope 1 and 2 emissions. This is a requirement of <b>Airport Carbon Accreditation</b> at level 2 and above, meaning that an airport's accreditation status could be downgraded, with associated negative implications, when there is little that an airport could do to avoid an increase in emissions.</p>	<p>It has been agreed that in exceptional circumstances, an airport that has experienced an increase in emissions may apply for a 'limited deviation' in order to renew their accreditation at the same level. In order to do so, airports must provide a detailed explanation for any increase (for example, by demonstrating using 'degree days' that exceptionally cold winters or hot summers are responsible for increases in emissions from terminal heating and cooling); must be able to demonstrate an overall downward trajectory in emissions; and are only permitted one such deviation in any five year period. The Advisory Board must approve any renewal made on this basis, taking into consideration a recommendation from the Programme Administrator. Details of the above procedure have been incorporated into the programme guidance.</p>
<p><b>Lack of visibility in the verification process</b>            In some instances, the information provided by airports and their verifiers has not demonstrated in the first instance that all participation and verification requirements had been fulfilled. Whilst it is often possible to confirm that all requirements have indeed been fulfilled, this has occasionally led to delays in accreditation as airports and their verifiers have had to provide significant amounts of additional information. In other instances, the level of information provided by verifiers has been in such depth that participating airports have had to bear unnecessary additional cost for the preparation of those materials.</p>	<p>To provide clarity on the verification requirements, a verification pro-forma has been incorporated into the <b>Airport Carbon Accreditation</b> Application Assessment Form. This must be signed off by verifiers, and reduces the need for additional supplementary evidence to be provided. Further to this, a web-based verifier training module is being developed to enable better understanding of the programme requirements (see section 5)</p>

# 5 Looking ahead to year 3



During the past two years, **Airport Carbon Accreditation** has been established as an accepted industry reference standard for airport carbon mapping and management. To ensure that this remains the case, it is critical that participation levels continue to increase during 2011-2012, with a target of 50% coverage of European passenger transport by the end of year 3.

**Target: 50% of European air traffic to be covered by airports participating in Airport Carbon Accreditation by May 2012**

ACI EUROPE and the Programme Administrator will continue to work with the Advisory Board and European Airports to build on the successes of the first two years of **Airport Carbon Accreditation** and ensure that airports remain accredited in the long term. Key aims for year 3 include:

- Incorporating new policy, reporting standards and best practise into **Airport Carbon Accreditation**.
- Facilitating the expansion of **Airport Carbon Accreditation** beyond European airports.
- Conducting training for verifiers to promote a better understanding of the programme requirements.

## 5.1. Incorporate new policy, reporting standards and best practise into Airport Carbon Accreditation

ACI EUROPE, the Programme Administrator and the Advisory Board will continue to work to ensure that further examples are incorporated into the requirements, through the maintenance of dialogue with the aviation industry and policy makers. In particular, attention will be paid to the participation of airlines in phase III of the EU ETS.

A new EU policy position on the acceptability of offsets derived from industrial gas projects is being incorporated into **Airport Carbon Accreditation** requirements so that high-quality offsets are used as a part of an airport's application for accreditation at Level 3+.

- It can be confirmed that all offsets purchased by airports that are currently accredited at level 3+ would still be accepted under the new rules.

Whilst **Airport Carbon Accreditation** has been developed as an industry-specific standard, it is acknowledged that many airports may also aspire to other carbon standards according to their own business pressures.

ACI EUROPE and the Administrator have worked to gain a better understanding of other standards and how they relate to **Airport Carbon Accreditation**.

- During year 1 of **Airport Carbon Accreditation**, the Administrator undertook an assessment of the UK's Carbon Trust Standard (CTS), and the ADEME Bilan Carbone (BC) standard in France in order to gain a better understanding of the equivalence between the two.
- Whilst the calculation of emissions for the BC is consistent with **Airport Carbon Accreditation** guidelines, the scope of the carbon footprint reported is larger than that required for **Airport Carbon Accreditation** as the purpose of the two programmes is not the same.
- The approach taken by the CTS is consistent with **Airport Carbon Accreditation**, meaning that airports that have achieved this standard can use this as evidence of the 'independent verification' of their footprint at Level 1 and Level 2.
- For the many other standards, the policy decision has been taken that, whilst there will be no formal mutual recognition of those standards, **Airport Carbon Accreditation** will consider an application from an airport that has already achieved an alternative standard on a case-by-case basis. Should it become apparent the footprint scope and calculation methodologies are sufficiently similar, those standards may be used by airports to demonstrate independent verification of the footprint, enabling the airport to make cost savings in this area.

## 5.2. Conducting training for verifiers

In response to feedback from airports regarding the verification process, a need for training has been identified so that verification bodies have sufficient understanding of the programme documentation and requirements.

The organisations that have carried out verifications to-date can clearly demonstrate that their staff have the required skill sets in place through examples of previous project experience (and in particular ISO14001 / EMAS certification and carbon assurance work), however their understanding of the way in which **Airport Carbon Accreditation** is structured has been shown in some cases to be limited when undertaking the verification for the first time.

In order to address this and ensure that airports and their verifiers have a common understanding of the programme and verification requirements, an online training package is being developed. Undertaking this training will enable verifiers to be listed as **Airport Carbon Accreditation** 'approved' on the programme website [www.airportcarbonaccreditation.org](http://www.airportcarbonaccreditation.org).

### 5.3. How to become Airport Carbon Accredited?

Any airport wishing to join the 43 airports that have already been accredited should take the following course of action. We recommend that airports have a continued dialogue with the **Airport Carbon Accreditation** Administrator during this process to ensure that information is prepared correctly and in line with the minimum **Airport Carbon Accreditation** requirements.

1. Contact **Airport Carbon Accreditation** administrator to obtain up-to-date programme documentation.
2. Review documentation.
3. Decide on level of participation based on level of carbon management activity at airport.
4. Collate data and prepare documentary evidence to support application; identify an independent third party organisation to verify data and supporting documentary evidence.
5. Contact **Airport Carbon Accreditation** Administrator to make arrangements for payment.
6. Submit application to **Airport Carbon Accreditation** Administrator for processing; pay participation fee.

Once all documentation has been submitted and participation fee received, the programme administrator will process the application according to its standard operating procedures and notify airports of any additional requirements within one week. Once the programme administrator is satisfied that the minimum **Airport Carbon Accreditation** requirements for the level of application have been received, certification and additional materials will be issued.

**Helpdesk details:**

**+44 845 868 2708**  
**aca@wspgroup.com**



## Appendix A – List of verifiers

Organisation	Airport	Level	Verifier
ANA	Faro	1 Mapping	Deloitte
ANA	Flores	1 Mapping	Deloitte
ANA	Horta	1 Mapping	Deloitte
ANA	Lisbon	1 Mapping	Deloitte
ANA	Porto	1 Mapping	Deloitte
ANA	Ponta Delgada	1 Mapping	Deloitte
ANA	Santa Maria	1 Mapping	Deloitte
Bologna Guglielmo Marconi Airport	Bologna	1 Mapping	CERMET
Budapest Airport Zrt.	Budapest	1 Mapping	ERM Hungary
Chisinau Airport	Chisinau	1 Mapping	TUV Hellas
DAA	Cork	1 Mapping	Bureau Veritas
DAA	Dublin	1 Mapping	Bureau Veritas
DAA	Shannon	1 Mapping	Bureau Veritas
Dubrovnik Airport	Dubrovnik	1 Mapping	Trames
Eindhoven Airport	Eindhoven	1 Mapping	KEMA Emissions Verification Services B.V.
Ruzyne-Prague Airport	Prague	1 Mapping	TUV SUD
TAV	İzmir Adnan Menderes	1 Mapping	Bureau Veritas
TAV	Ankara Esenboğa	1 Mapping	Bureau Veritas
TAV	Istanbul Ataturk	1 Mapping	Bureau Veritas
Aeroports de Paris	Paris Charles de Gaulle	2 Reduction	Bureau Veritas
Aeroports de Paris	Paris Orly	2 Reduction	Bureau Veritas
AIA	Athens	2 Reduction	TUV Hellas
Avinor	Kristiansand	2 Reduction	DNV
TAG	Farnborough	2 Reduction	Clouds
Fraport AG	Frankfurt	2 Reduction	Institute fu Umwelt technik:
Gatwick Airport	London Gatwick	2 Reduction	Carbon Trust, UK



Organisation	Airport	Level	Verifier
Hamburg Airport GmbH	Hamburg	2 Reduction	BRUB CERT GmbH
BAA Heathrow	London Heathrow	3 Optimisation	Carbon Trust, UK
Manchester Airport Group	Manchester	3 Optimisation	Carbon Trust, UK
Munich Airport GmbH	Munich	3 Optimisation	Intechnica
Schiphol Group	Schiphol	3 Optimisation	KEMA
Zurich Airport AG	Zurich	3 Optimisation	DNV
Avinor	Oslo	3+ Neutrality	DNV
Avinor	Trondheim	3+ Neutrality	DNV
SEA Milan	Linate	3+ Neutrality	TUV Sud
SEA Milan	Malpensa	3+ Neutrality	TUV Sud
Swedavia	Umea City	3+ Neutrality	Bureau Veritas
Swedavia	Stockholm Arlanda	3+ Neutrality	Bureau Veritas
Swedavia	Gothenburg	3+ Neutrality	Bureau Veritas
Swedavia	Stockholm-Bromma	3+ Neutrality	Bureau Veritas

**Airport Carbon Accreditation** has received formal endorsement From the European Civil Aviation Conference (ECAC) and the European Organisation for the Safety of Air Navigation (EUROCONTROL)



To find out more about **Airport Carbon Accreditation**, including an up-to-the-minute list of participating airports, please visit our website at:

**[www.airportcarbonaccreditation.org](http://www.airportcarbonaccreditation.org)**

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