



# *Airport Carbon Accreditation*

## *Guidance Document*

### *Issue 10*



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# 1 Overview

*Airport Carbon Accreditation* was developed and launched in Europe by Airports Council International (ACI)-Europe in 2009. As of late 2014, *Airport Carbon Accreditation* had expanded world-wide to all ACI regions. It is the only voluntary global carbon management standard for airports. The milestones of the programme's expansion to all regions are presented in Figure 1.

**Figure 1: Airport Carbon Accreditation Milestones**



The aim of *Airport Carbon Accreditation* is to encourage and enable airports to implement best practices in carbon management, with the ultimate objective of becoming carbon neutral. Accreditation provides the opportunity for airports to gain public recognition for their achievements, promotes efficiency improvements, encourages knowledge transfer, raises an airport's profile & credibility, encourages standardisation, and increases awareness and specialisation.

The programme is overseen by an Advisory Board, which consists of representatives from authoritative institutions such as the International Civil Aviation Organisation (ICAO), the United Nations Framework Convention on Climate Change (UNFCCC), the United Nations Environment Programme (UNEP), the European Commission, EUROCONTROL, the US Federal Aviation Administration (FAA) and the Manchester Metropolitan University. Furthermore, a Task Force meets twice a year and regularly reviews information to ensure that the programme's technical standards are updated in accordance with relevant needs and developments.

Airports can participate at four progressively stringent levels of accreditation: 1. Mapping; 2. Reduction; 3. Optimisation; and 3+. Neutrality. *Airport Carbon Accreditation* focuses on CO<sub>2</sub> emissions, as they comprise the large majority of airport emissions. Airports may include emissions of other greenhouse gases (GHGs) on a voluntary basis, as an example of best practices. Independent third party verification by an approved verifier is an essential component of the programme.

*Airport Carbon Accreditation* is developed in line with the GHG Protocol and ISO 14064 principles, as it sets the framework and management system to develop the carbon footprint and identify projects to reduce emissions.<sup>1</sup> At the same time the programme provides the opportunity for airports to focus on emissions reductions and ultimately become carbon neutral. Figure 2 summarises the main requirements of the programme at each accreditation level.

<sup>1</sup> Specific sections of the Guidelines rely heavily on the GHG Protocol, 2004 and ISO 14064. Copyright provisions described in these documents apply to their use in this Guidance Document

**Figure 2: Main Requirements of Airport Carbon Accreditation**



Accredited airports receive a certificate indicating the level they have achieved. The main requirements at each level of accreditation are presented below and in Figure 3.

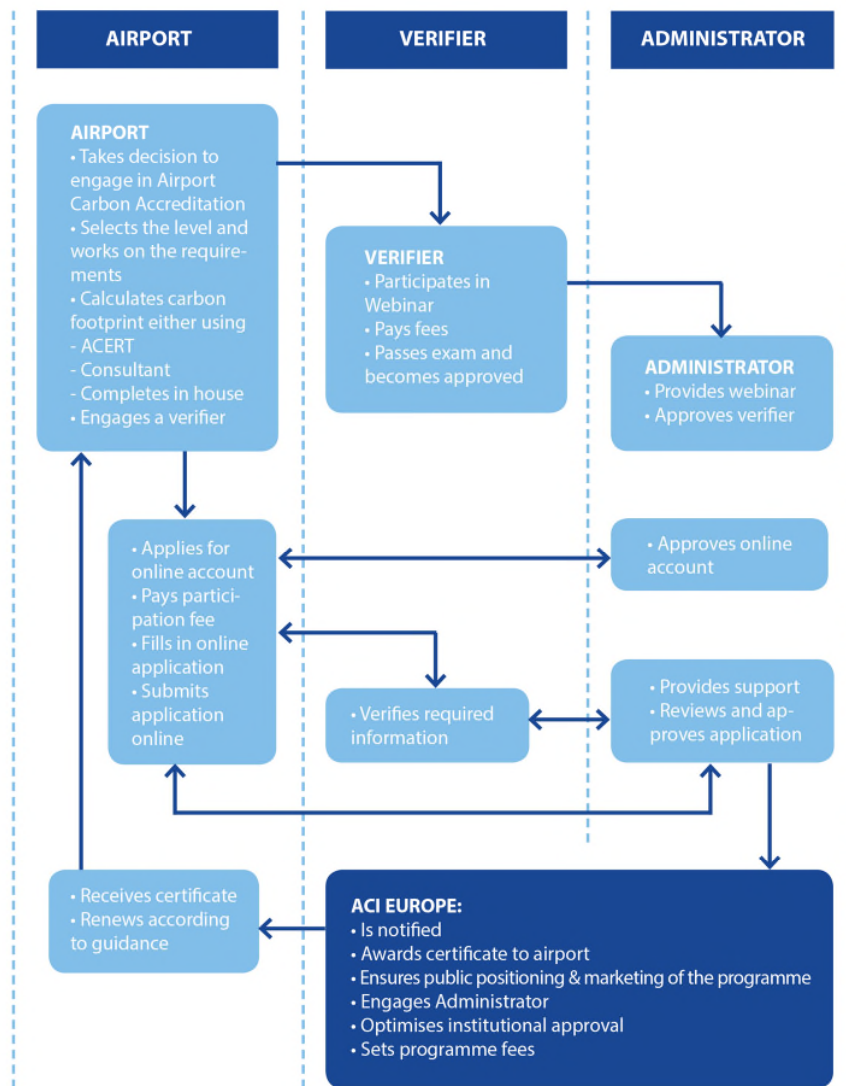
- **Level 1 Mapping**
  - Policy commitment to emissions reduction.
  - Development of a carbon footprint for the airport's scope 1 and 2 emissions.
  
- **Level 2 Reduction**
  - Fulfilment of all level 1 accreditation requirements.
  - Formulation of a carbon emissions reduction target.
  - Development of a Carbon Management Plan to achieve the target.
  - Demonstration of scope 1 and 2 emissions reductions versus the three-year rolling average.
  
- **Level 3 Optimisation**
  - Fulfilment of all level 2 accreditation requirements.
  - Additional carbon footprint to include specific scope 3 emissions.
  - Development of a Stakeholder Engagement Plan.
  
- **Level 3+ Neutrality**
  - Fulfilment of all level 3 accreditation requirements.
  - Offset of residual emissions under the airport's control.

**Figure 3: Summary of Participation Requirements at each Accreditation Level**

| Requirement                 | Policy statement                    | Carbon footprint                | Target setting & Carbon Management Plan | On-going reductions in carbon emissions | Additional carbon footprint                           | Stakeholder Engagement Plan                           | Offset of residual emissions            |
|-----------------------------|-------------------------------------|---------------------------------|---|---|---|---|---|
| <b>Types of emissions</b>   | Depending on level of accreditation | Emissions under airport control | Emissions under airport control         | Emissions under airport control         | Specific emissions the airport can guide or influence | Specific emissions the airport can guide or influence | Emissions under airport control         |
| <b>Scope</b>                | Depending on level of accreditation | 1 & 2                           | 1 & 2                                   | 1 & 2                                   | Specific 3  | Specific 3  | 1 & 2 (& airport staff business travel) |
| <b>Level 1 Mapping</b>      | ✓                                   | ✓                               |   |   |   |   |   |
| <b>Level 2 Reduction</b>    | ✓                                   | ✓                               | ✓                                       | ✓                                       |   |   |   |
| <b>Level 3 Optimisation</b> | ✓                                   | ✓                               | ✓                                       | ✓                                       | ✓   | ✓   |   |
| <b>Level 3+ Neutrality</b>  | ✓                                   | ✓                               | ✓                                       | ✓                                       | ✓   | ✓   | ✓                                       |

Figure 4 depicts the process of accreditation and the specific roles of the airport, the verifier, the programme’s Administrator, and ACI Europe.

**Figure 4: Accreditation Responsibilities**



This Guidance Document provides comprehensive and concise information to airports planning to become accredited at one of the levels of *Airport Carbon Accreditation* or to renew/upgrade their accreditation. It also includes references and links to more detailed information on specific topics.

Sections 2 and 3 provide a general overview of the programme. Sections 4 and 5 focus on requirements for all accreditation levels. Sections 7, 8 and 9 look into specific requirements for some of the levels. Section 10 analyses verification issues and section 11 examines some special cases. Section 12 introduces an example of accreditation.

## **2 Practical Information**

### **2.1 Eligibility**

Airports that are members of any of the ACI regions are eligible to participate in *Airport Carbon Accreditation*. For the latest information about the programme visit <http://www.airportcarbonaccredited.org> while the participant Terms & Conditions are available at [www.aca-application.org](http://www.aca-application.org).

### **2.2 Independent Programme Administrator**

The independent programme Administrator is appointed by ACI EUROPE and is WSP | Parsons Brinckerhoff. The Administrator grants formal accreditation approval and manages the application process. It guides and supports airports through this process; helps to develop and enforce the accreditation criteria and keeps them updated; provides supporting administrative and secretariat services, reports, records, guidance, webinars and training and oversees the appointment and training of third party verifiers.

① The Administrator is not responsible for compiling carbon footprints. This is the responsibility of the airports. Furthermore, the Administrator cannot act as an independent verifier to the programme as this would constitute a conflict of interest.

### **2.3 Online Application Tool**

Application for accreditation (i.e., first-time accreditation, renewal and upgrade) is done through the online tool at [www.aca-application.org](http://www.aca-application.org). Upon registration, potential applicants can obtain the Guidance Document for free.

### **2.4 Applicant Support and Helpline**

The Administrator provides a helpline service for all airports, which are considering or are in the process of applying as well as for all existing and potential verifiers. Airports are strongly encouraged to contact the Administrator via email at [aca@wspgroup.com](mailto:aca@wspgroup.com) in case of questions in relation to the Guidance Document, programme requirements, etc.

### **2.5 Accreditation Fees and Other Costs**

The methodology for the calculation of the accreditation fees is the same as for the calculation of ACI membership fees. They are calculated based on the band the airport belongs to, in accordance with official passenger figures, two years before the time of application (e.g., for accreditation in 2016 the band is based on 2014 official passenger figures). For band levels and fees contact the Administrator. In addition to these fees an airport must take into account the cost of preparing its application (e.g. internally or through a consultant) and the cost of third party verification.

### **2.6 Confidentiality**

All application data that are provided for any purpose will remain confidential. The Administrator will compile aggregated data for public annual reporting but no part of this aggregated data can be disassembled and elements of it attributed to individual airports. At the specific request of the Advisory Board of the programme, some individual airport-specific data may be made available on a confidential basis to members of the Advisory Board for the purposes of ascertaining the overall veracity of the programme. The airport concerned will be informed of any such request. Finally, for the purpose of reporting on airport-specific best practice and case studies, permission will be sought from the airport prior to data use and publication.

① As part of best practice and transparency, *Airport Carbon Accreditation* encourages airports to publish their carbon footprint, emissions reduction targets, and other relevant information.



### 3 Accreditation Level Requirements

This section introduces the key requirements at each level of accreditation. Details are provided in subsequent sections of this document, while the verification requirements are presented in a dedicated section.



#### 3.1 Level 1 Mapping

##### 3.1.1 Requirements of Level 1 Accreditation

- **Policy commitment to emissions reduction.** Public written evidence of commitment to greenhouse gas, carbon or energy reduction at the highest level (i.e., Chief Executive Officer, Chief Operations Officer, Board of Directors) in the form of a signed policy statement. This may be an independent statement or part of an existing policy statement (e.g., EMAS or ISO 14001) or report (e.g., Annual or Environmental Report).

A policy statement provides the opportunity to demonstrate executive-level commitment, raise the importance of emission reductions and energy efficiency, and develop the framework for meeting the programme's requirements. The policy statement should be worded in a way that best meets the overall needs of the airport. It may be drafted in the national language of the country provided that the third party verifier confirms that it meets the programme's requirements. The statement should be made available to the public (e.g., company website or publications). Relevant airport web-site links and documentation shall be provided to the Administrator as part of the application.

- **Development of a carbon footprint for the airport's scope 1 and 2 emissions.** It is recommended that airports consolidate all the key carbon footprint information and data into a Carbon Footprint Report.

##### 3.1.2 Requirements of Level 1 Renewal

- **Annual submission of a carbon footprint for the airport's scope 1 and 2 emissions.** The carbon footprint should be submitted annually. The carbon footprint and the renewal application should include any changes to the scope of emissions reported, differences in organisational boundaries, etc.



## 3.2 Level 2 Reduction

### 3.2.1 Requirements of Level 2 Accreditation

- **Fulfilment of all level 1 accreditation requirements.**
- **Formulation of a carbon emissions reduction target.** The target shall be related to scope 1 and 2 emissions and also include the emissions improvement metric (i.e., absolute or intensity target). The airport shall also select a base year for the target.
- **Development of a Carbon Management Plan to achieve the target.** The purpose of the Plan, which should focus on scope 1 and 2 emissions, is to demonstrate the meaningful efforts by the airport to reduce its emissions in line with the set target and policy statement. The airport should also provide evidence to demonstrate that the Plan is being implemented effectively.
- **Demonstration of scope 1 and 2 emissions reduction versus the three-year rolling average,** in order to encourage airports to continuously improve their carbon management performance.

### 3.2.2 Requirements of Level 2 Renewal

- **Fulfilment of all level 1 accreditation renewal requirements.**
- **Demonstration of scope 1 and 2 emissions reductions versus the three-year rolling average.**
- **Revised Carbon Management Plan.** The Plan should be revised at least every three years, and should include updated airport initiatives as well as analysis on how the airport has responded to new organisational and operational circumstances, changes of legal requirements and statutory codes, new scientific evidence of climate change, advanced technologies and management processes, etc. During the interim years the airport should provide evidence for the implementation of the plan through the online application form and supporting documentation.



### 3.3 Level 3 Optimisation

#### 3.3.1 Requirements of Level 3 Accreditation

- **Fulfilment of all level 2 accreditation requirements.**
- **Additional carbon footprint to include specific scope 3 emissions.** The carbon footprint should include additional information. This will comprise emissions from activities that are central to the airports operations and that an airport is expected to guide or influence, including as a minimum: the Landing and Take Off (LTO) cycle, engine testing and auxiliary power unit operation (APU), third party ground support equipment (GSE) operations, electricity re-sold to or directly purchased by partners/tenants, surface access by passengers and airport company staff and airport company staff business travel.
- **Development of a Stakeholder Engagement Plan.** The Plan should demonstrate that the airport has on-going dialogue, shares best practices, provides training, develops joint projects, and promotes cooperation with key stakeholders with the aim of reducing emissions from major activities which the airport can guide or influence. Stakeholders include operational and service companies, such as airlines, ground handlers, catering companies, etc., as well as staff and passengers.

#### 3.3.2 Requirements of Level 3 Renewal

- **Fulfilment of all level 2 accreditation renewal requirements,** noting that the carbon footprint should also include specific scope 3 emissions as described above.
- **Revised Stakeholder Engagement Plan.** The Plan should be revised at least every three years and should include updated information about stakeholders, joint initiatives, achievement of targets, training and awareness, etc. During the interim years the airport should provide evidence for the implementation of the plan through the online application form.

#### 3.3.3 Requirements of Three-Year Renewal Cycle at Level 3

When an airport has been accredited for three or more consecutive years at level 3 it is permitted to move from annual renewal to a three-year renewal cycle, should it wish to do so. That means that after initial accreditation in year 0 and two successful renewals at that level in years 1 and 2, then in year 3 the airport must fulfil specific requirements to be allowed to renew again in three years' time. There are significant fee reductions from such an option. In order to extend its renewal cycle to three years, an airport must fulfil the following requirements (see Section 11 for more details):

- **Fulfilment of all level 3 renewal requirements.**
- **Update of the Stakeholder Engagement Plan.** The airport should provide details and supporting evidence on the airport's planned stakeholder engagement activities for the three-year period.
- **Stakeholder emissions reduction.** Submission of quantitative, verified emissions reductions achieved for at least one scope 3 emissions source as a result of an active stakeholder engagement initiative in place.
- **Annual submission of a non-verified carbon footprint for the interim years.**



### 3.4 Level 3+ Neutrality

#### 3.4.1 Requirements of Level 3+ Accreditation

- **Fulfilment of all level 3 accreditation requirements.**
- **Offset of residual emissions.** Airports should purchase offsets and submit evidence to cover scope 1 and 2 residual emissions as well as scope 3 airport staff business travel emissions that cannot be reduced by other means.

#### 3.4.2 Requirements of Level 3+ Renewal

- **Fulfilment of all level 3 accreditation renewal requirements.**
- **Offset of residual emissions.** Airports should purchase offsets and submit evidence to cover scope 1 and 2 residual emissions as well as scope 3 airport staff business travel emissions that cannot be reduced by other means. Before purchasing offsets airports should consider what further emissions reductions they can make.

#### 3.4.3 Requirements of Three-Year Renewal Cycle at Level 3+

- **Fulfilment of all level 3 three-year renewal requirements.**
- **Submission of offset evidence.** Upon submission of the annual footprint data for the interim years, the airport should submit evidence that offsets have been purchased to cover scope 1 and 2 residual emissions, as well as scope 3 airport staff business travel emissions that cannot be reduced by other means.

## 4 The Airport Inventory Boundary

Before calculating the carbon footprint, it is important that the airport defines its inventory boundary. The established organisational and operational boundaries together constitute an airport's inventory boundary. These boundaries are required to properly account for and report emissions.

### 4.1 Setting the Organisational Boundaries

Airport operations vary in their legal and organisational structures as they include wholly owned operations, incorporated and non-incorporated joint ventures, subsidiaries, etc. In setting organisational boundaries, an airport should apply an approach to define those businesses and operations that constitute the company for the purpose of accounting and reporting GHG emissions.

*Airport Carbon Accreditation* uses an adaptation of the control approach (of the GHG Protocol) for setting organisational boundaries. Where an airport has operational control over a source of emissions, the airport should account for 100% of these emissions.

### 4.2 Setting the Operational Boundaries

According to the GHG Protocol an operational boundary defines the scope of direct and indirect emissions for operations based on a company's established organisational boundary. The operational boundary (scope 1, scope 2, scope 3) is decided after setting the organisational boundary. The selected operational boundary is then uniformly applied to identify and categorise direct and indirect emissions at each operational level. Sources of emissions (activities/facilities) should be categorised as scope 1, 2 or 3 (See Figure 5):

**Scope 1:** Direct GHG emissions that occur from sources that are owned and/or controlled by the airport, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc.

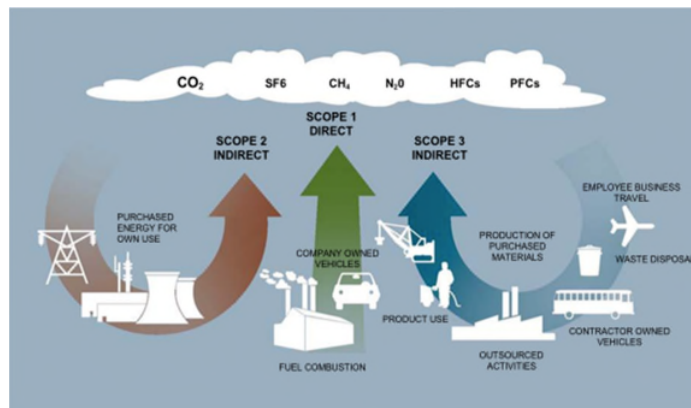
**Scope 2:** Indirect GHG emissions from the generation of purchased electricity, steam, heat or cooling<sup>2</sup> consumed by the airport. Scope 2 emissions physically occur at the facility where purchased electricity is generated.

**Scope 3:** All other indirect emissions, which are a consequence of the activities of the airport, but occur from sources not owned and/or controlled by the company (e.g., aircraft movements, vehicles and equipment operated by third parties, off-site waste management, etc.).

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<sup>2</sup> As per the GHG Protocol Scope 2 Guidance (2015), p. 5, the above four categories are collectively referred to as "electricity." This Guidance Document adopts the same approach.

**Figure 5: Overview of Scopes & Emissions**



Source: GHG Protocol, 2004

### **4.3 Identification of Emissions Sources**

Within this framework, airports should identify the relevant emissions sources and determine where they have control over emissions (scope 1, 2 and airport staff business travel) and where they can guide or influence emissions from activities of other stakeholders (scope 3).

Although boundaries will vary from airport to airport, an example of how a typical airport might define its footprint boundary is provided in Figure 6. This is only an indicative example and each airport will need to complete this exercise based on their specific activities and facilities.

**Figure 6: Indicative Example of a Typical Airport Carbon Footprint Boundary**

|  | <b>CONTROL</b><br>Facilities, services, activities and equipment for which the airport company has ownership/control.  | <b>GUIDE</b><br>Facilities, services, activities, and equipment owned / controlled by subcontractors, close partners and suppliers for which the airport company can provide guidance. | <b>INFLUENCE</b><br>Facilities, services, activities and equipment owned/controlled by loose partners, tenants, customers, government agencies, etc. which the airport company can only influence. |
|--|--|--|--|
| <b>Scope 1<br/>Direct Emissions</b>          |  |  |  |
| Stationary sources                           | Boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, flares, generators, etc. |  |  |
| Mobile sources                               | Automobiles (airside / landside), trucks, employee buses, ground power units, etc.                                     |  |  |
| Process emissions                            | Onsite waste management, waste water management, etc.  |  |  |
| Other  | Leaks from plants particularly fire suppression CO <sub>2</sub> , fuel tanks (optional), etc.                          |  |  |
| <b>Scope 2<br/>Energy Indirect Emissions</b> | Emissions from purchased electricity, heating, cooling, etc.   |  |  |
| <b>Scope 3<br/>Other Indirect Emissions</b>  |  |  |  |
| Aircraft                                     |  | Aircraft ground movements, engine start up to idle (run ups), engine reverse thrust, taxiing, APU, PCA, etc.   | Take off, landing, approach, climb, cruise, etc.   |
| Stationary sources                           |  | Boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, flares operated by contractors or close partners, etc.                                   | 3rd party boilers, furnaces, burners, turbines, heaters, incinerators, engines, etc.   |
| Mobile sources                               | Business travel of airport company staff.  | Vehicles, GSE equipment and ground power units operated by 3rd parties, staff travel in own vehicles / commute, haulage, etc.  | Business travel (3rd parties), surface access (passengers), staff travel / commute (3rd parties), 3rd party owned vehicles, etc.   |
| Process emissions                            |  | Offsite management / disposal of airport waste, etc.   | Management of waste where disposal arrangements are made by 3rd parties, etc.  |
| Infrastructure                               |  | Grid power and fuel consumed by close partners, etc.   | Grid power and fuel consumed by other 3 <sup>rd</sup> parties, etc.  |

## 5 The Carbon Footprint

The carbon footprint covering a 12-month period is a key component of *Airport Carbon Accreditation*. The programme has adopted the principles of the GHG Protocol to ensure that the reported information is a fair representation of an airport's emissions. The carbon footprint must have been prepared up to 12 months before the date of submission.

### 5.1 Carbon Footprint at Level 1 and 2

For the development of the carbon footprint at level 1 and 2, the airport shall calculate its scope 1 and 2 emissions, from sources over which it has control including those arising from:

- **Stationary sources (scope 1):** Boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, generators, etc.
- **Mobile sources (scope 1):** automobiles (airside/landside), trucks, employee buses, etc.
- **Process emissions (scope 1):** On site waste and wastewater management, etc.
- **Other emissions (scope 1):** Fire suppression CO<sub>2</sub>, etc.
- **Indirect emissions (scope 2):** Emissions from purchased electricity.

The emissions from the generation of electricity, heat, steam or cooling (collectively referred to as "electricity") in a stationary combustion plant that is owned or leased by the airport should be part of the airport's scope 1 emissions. If an airport sells any of the electricity that is generated, it is not allowed to net off the emissions associated with that energy from its scope 1 emissions.

Where an airport purchases electricity from a third party (but not where it leases the plant) the emissions associated with those energy sources should be included in the airport's scope 2 emissions. If an airport sells any of the purchased electricity to another third party (e.g. tenants or airport partners) it is allowed to net off the emissions associated with that energy from its scope 2 emissions only if the energy sale is metered (regardless if the resale is actually based on the metering or other method, such as floor area). These netted off emissions shall then be included in scope 3. If the re-sold energy from scope 2 sources is not metered then it cannot be deducted from the total scope 2 emissions.

Emissions from fuel sold by the airport to third parties for use in their operations (e.g., vehicles, equipment) should not be part of scope 1 emissions. They may be included in scope 3 emissions.

① Leased or rented equipment that is under the control of the airport or is under the control of a leasing company but is operated for the sole benefit of the airport (e.g., leased vehicles or generators) should be included in scope 1 or scope 2 emissions irrespective of the financial or legal arrangements. Airports should consider who the main beneficiary of the equipment is.

① Carbon footprints should allow year on year comparisons. If an airport expands or reduces the footprint scope in subsequent years (e.g., additional GHGs), the carbon footprints of the three years preceding the new carbon footprint should also be included to allow for a "like for like" comparison.

#### 5.1.1 Calculation of Scope 2 Emissions: Location and Market Based Approach<sup>3</sup>

The programme has adopted the GHG Protocol Scope 2 Guidance according to which there are two ways of reporting scope 2 emissions: location based and market based. The location based approach reflects the average electricity emissions of the country or region where the airport is located and uses an average emission factor specific to the grid on which the energy consumption occurs. The market-based approach reflects the emissions from the electricity sources and products

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<sup>3</sup> See GHG Protocol Scope 2 Guidance (2015), [http://www.ghgprotocol.org/scope\\_2\\_guidance](http://www.ghgprotocol.org/scope_2_guidance).



that have been purposefully chosen and, under strict conditions, allows for the use of an emission factor that is directly associated with the type of electricity purchased.

① All airports are required to report their scope 2 emissions using location based data. If the airports are located in a market where there is a choice of electricity product or supplier, they also need to report using the market based method.<sup>4</sup>

## 5.2 Carbon Footprint at Level 3 and 3+

In addition to the carbon footprint requirements of level 1 and 2, airports applying for level 3 or 3+ must include as a minimum scope 3 emissions from the following specific sources in the carbon footprint:

1. The LTO cycle to a height of 3,000 feet. This includes emissions generated during approach, taxi and ground idle (in), taxi and ground idle (out), take off and climb. Airports should report on emissions from all aircraft using the airport, including commercial airlines, private aviation, helicopters and cargo, but excluding military flights. Emissions data should be based on actual aircraft movements and the most precise data available to the airport. The calculation methodology should be based on the ICAO Document 9889, Air Quality Guidance Manual (latest edition), wherever possible with the following input:

- Actual time-in modes for the airport and aircraft type.
- Fuel flow data from the ICAO engine datasheets.<sup>5</sup>
- Emission factor for jet fuel from the GHG protocol or ICAO.
- The number of engines running in each mode.

Where other methodologies are used for calculating aircraft emissions, airports should provide details of the calculation method with justification and assumptions made. Airports should provide information on any uncertainties or assumptions. Furthermore, reporting on emissions from aircraft cruising is not required. However, voluntary reporting of such emissions is considered to be good practice.

2. APUs and engine testing.<sup>6</sup>

3. GSE belonging to third parties necessary to handle the aircraft during the turnaround at the stand (e.g., ground power units, air climate units, aircraft tugs, conveyer belts, passenger stairs, fork lifts, tractors, cargo loaders). Note that GSE belonging to the airport should be included in scope 1 emissions.

4. Surface (staff and passenger) access emissions. Airports should supply data on surface access emissions with an explanation of assumptions and methodologies (e.g., questionnaires, reports, national databases).<sup>7</sup>

5. Electricity re-sold to or directly purchased by partners/tenants. In the case of electricity that is resold by the airport, it should be metered (regardless of whether the resale is actually based on the metering or other method, such as floor area). Otherwise, it falls under the airport's scope 2 emissions.

6. Airport company staff business travel. Emissions from staff business travel should be based on the most precise data available including ticket information, business mileage, expense claims, data from vehicle leasing companies, etc. Calculations should be based on the fuel use method where

<sup>4</sup> To facilitate the decision on the appropriate method see Figure 6.1 of the GHG Protocol Scope 2 Guidance (2015).

<sup>5</sup> <https://www.easa.europa.eu/document-library/icao-aircraft-engine-emissions-databank>

<sup>6</sup> Airports can consult ICAO's Doc 9889, Airport Air Quality Manual (2011).

<sup>7</sup> Airports can consult Section 7 of the Greenhouse Gas Protocol, Technical Guidance for Calculating Scope 3 Emissions (Version 1.0, 2013) at [http://ghgprotocol.org/sites/default/files/ghgp/Scope3\\_Calculation\\_Guidance.pdf](http://ghgprotocol.org/sites/default/files/ghgp/Scope3_Calculation_Guidance.pdf)

possible but calculations based on distance are acceptable.<sup>8</sup>

① Airports may also include additional significant CO<sub>2</sub> emissions sources, which they may be able to guide or influence (e.g., waste management).

① When reporting scope 3 emissions derived from metered electricity used by tenants, airports must use the location based methodology, but may also provide a market based scope 3 figure if they have a choice of energy supplier(s).

① Airports should also undertake quality control of the carbon footprint, in addition to the verification required by the programme. Section 7 of the GHG Protocol provides useful guidelines.

## **5.3 Carbon Footprint Calculations**

### **5.3.1 GHG Protocol Worksheets & ACERT**

Airports may submit their carbon footprint data using, or in line with, the worksheets provided by the GHG Protocol, ISO 14064-1, ACI's Airport Carbon and Emissions Reporting Tool (ACERT) or an appropriate combination of these tools.<sup>9</sup>

ACERT is a self-contained Excel spread sheet specifically designed to enable an airport to calculate its GHG emissions inventory. ACERT was initially developed by Transport Canada and its consultant EBA with the Canadian Airports Council. A global version was developed with the further assistance of Zurich Airport and Toronto Pearson Airport. The tool is available for free and can be used by inputting readily available operational data. As of version 3.1, ACERT has been designed and approved for use at all levels of *Airport Carbon Accreditation*.

Where participants wish to submit their carbon footprint data in a different format, the data calculations reporting should meet the requirements presented in Figure 7. In general, data should be presented in a clear format with supporting information in English.

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<sup>8</sup> For airline flights ICAO has developed a useful application. See <http://www.icao.int/ENVIRONMENTAL-PROTECTION/CarbonOffset/Pages/default.aspx>

<sup>9</sup> For the GHG Protocol see <http://www.ghgprotocol.org/calculation-tools/all-tools> For ACERT see <http://www.aci.aero/About-ACI/Priorities/Environment/ACERT>

**Figure 7: Minimum Requirements for Carbon Footprint Calculations**

| Level         | Scope | Emission Type  | Minimum Data Required  |
|---------------|-------|--|--|
| 1, 2<br>3, 3+ | 1     | Stationary combustion engines  | Source description; Fuel type; Quantity consumed; Unit of measurement; Emissions factors; Calculated CO <sub>2</sub> emissions in metric tonnes.   |
|               | 1     | Mobile combustion engines  | Fleet & number of vehicles; Fuel type; Unit of measurement; Energy consumed; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.  |
|               | 1     | Process emissions  | Type of waste treated; Quantity of waste treated; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.   |
|               | 2     | Emissions from the purchase of electricity, steam, heat and cooling                          | Plant description; Power consumed in kWh; Emissions netted off for sold energy (if metered); Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes; Information about selection of product/supplier. |
| 3, 3+         | 3     | LTO cycle  | For each mode: Time in mode; Fuel consumption for specific engines; Number of engines running; Emissions factor for jet fuel; Calculated CO <sub>2</sub> emissions in metric tonnes.                                   |
|               | 3     | Engine run-up & testing, APUs, etc.  | Fuel consumption; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.   |
|               | 3     | Mobile combustion engines (e.g., GSE) operated by third parties                              | Fleet & number of vehicles; Fuel type; Unit of measurement; Energy consumed; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.  |
|               | 3     | Emissions from the purchase of metered electricity, steam, heat and cooling by third parties | Plant description; Power consumed in kWh; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.   |
|               | 3     | Airport company staff business travel  | Fuel consumed or distance travelled; Mode of transport; Fuel type; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.  |
|               | 3     | Surface access   | Mode of transport; Information on data collection and sampling methods; Assumptions; Surveys; Emissions factor; Calculated CO <sub>2</sub> emissions in metric tonnes.   |

① Sources of data may include the airport's technical, human resources, or accounting departments, reports, surveys, national statistics, etc.

① For scope 3 emissions, every effort should be made to access the source documents of the relevant stakeholders, although it is understood that this may not always be possible, for example where the stakeholder considers those documents to be commercially sensitive.

### 5.3.2 Emissions Factors

Emissions factors are provided with the worksheets of the GHG Protocol and ACERT.<sup>10</sup> Airports may use different emissions factors that may be more up to date (e.g., emission factors published by the country's relevant Ministry, emission factors calculated by the airport). In such case the airport should provide justification for the selection of the factors used. For scope 2, the emissions factors

<sup>10</sup> See <http://www.ghgprotocol.org/calculation-tools/all-tools>

associated with the location and market based approaches are described in Figure 8, which is consistent with the GHG Protocol Scope 2 Guidance (2015).<sup>11</sup>

### **Figure 8**

#### **Use of Emissions Factors for Electricity Purchased or Generated from Renewable Sources**

##### Location based

1. If an airport produces electricity from on-site renewables, or purchases electricity from a direct line to a renewable or low carbon source, a source-specific emissions factor (e.g. zero for renewables) can be used only as long as the airport retains its energy attributes.
2. If an airport produces electricity from renewable sources on site, or purchases electricity from a direct line to a renewable or low carbon source, for which the airport has not retained its energy attributes, then that airport should use the grid emissions factor. In most countries, energy attributes cannot be retained when receiving subsidies (e.g., feed-in-tariffs), but this may vary from one country to another depending on national regulation. It is the airport's responsibility to check what their national regulation allows and apply the correct emission factor accordingly.
3. If an airport purchases electricity from the grid through any type of contractual agreement, the airport should still use the grid emissions factor. A contractual agreement is any type of contract between two parties for the sale and purchase of energy that provides information about the type of energy it relates to. It includes energy attribute certificates (Renewable Energy Certificates-RECs, Guarantees of Origin-GOs, etc.), direct contracts (for both low-carbon, renewable, and fossil fuel generation), green power programmes, and supplier specific labelling and fossil fuel contracts.

##### Market based

When calculating the market based carbon footprint, an airport should use the following hierarchy to decide which emissions factor to use: □

1. If the airport holds or buys energy attribute certificates (e.g., RECs, generator declarations or GOs), it should use an emissions factor that accounts for these. If not, it should move to option 2.
2. If an airport has any contracts for electricity (e.g. Power Purchase Agreements from a specific renewable energy source), it should use the contract specific information. If not, it should move to option 3.
3. If an airport's electricity supplier provides an emissions factor specific to the energy product it receives, it should use this one. If not, it should move to option 4.
4. If an airport has access to its country wide residual mix, it should use this one.<sup>12</sup> If this is unavailable, the airport should use option 5.
5. Use the national grid emissions factor. In this case the figure will be identical to the one calculated with the location-based approach.

① In addition, to be accepted as a market based calculation, contractual agreements should meet the following quality criteria. They should:

- a. Convey the direct GHG emission rate attribute associated with the unit of electricity produced;
- b. Be the only instruments that carry the GHG emission rate attribute claim associated with that quantity of electricity generation;
- c. Be tracked and redeemed, retired, or cancelled by or on behalf of the airport;
- d. Be issued and redeemed as close as possible to the period of energy consumption to which the contractual agreement is applied; and
- e. Be sourced from the same market in which airport's operations are located and to which the contractual agreement is applied.

<sup>11</sup> See [http://www.ghgprotocol.org/scope\\_2\\_guidance](http://www.ghgprotocol.org/scope_2_guidance)

<sup>12</sup> All EU countries have access to the residual mix and other information on the electricity market under the Reliable Disclosure Systems for Europe/RE-DISS project. See: <http://www.reliable-disclosure.org/documents>.

## 5.4 The Carbon Footprint Report

All airports are required to upload a copy of their carbon footprints with their on-line application. This can be submitted in different formats but shall clearly provide emissions breakdowns by scope and by emission source (e.g. electricity consumption, heating, LTO, etc.). It is recommended (but not required) that airports compile all the key information and data from Section 5 into a Carbon Footprint Report. The recommended contents of the report are presented in Figure 9. Alternatively they can provide this information as part of other reports/documents.

**Figure 9: Recommended Contents of the Carbon Footprint Report**

|  |
|--|
| <ul style="list-style-type: none"><li>▪ Purpose/objectives of the report and intended use/users as well as the reporting period.</li><li>▪ General information about the airport (e.g., brief historical information, ownership structure, location, employees, passengers/aircraft movements/cargo over the years, general map, etc.).</li><li>▪ Information about organisational and operational boundaries and emissions sources. In order to properly identify their inventory boundary, airports should classify their emissions (Scope 1, 2, and 3; Control/Guide/Influence) and identify the departments or stakeholders with responsibility regarding these emissions, changes, exclusion of sources, etc. This identification/classification should take place even at level 1.</li><li>▪ Description of the airport's carbon management policies, strategies or programmes, including participation in <i>Airport Carbon Accreditation</i> (e.g., level, history, targets) or other initiatives.</li><li>▪ Information about past CO<sub>2</sub> (and where relevant other) emissions (e.g., reference year, quantities, historical information, sources and activities, comparisons).</li><li>▪ Carbon footprint calculation methodology including:<ul style="list-style-type: none"><li>○ Procedures for the collection, documentation and processing of emissions data.</li><li>○ Details on the role of airport departments regarding the carbon footprint process.</li><li>○ Emissions target setting and selection of base year (if relevant).</li><li>○ Data sources (e.g., invoices, delivery notes, weigh-bridge tickets, meter readings).</li><li>○ Data management (e.g., software, responsible department, data storage).</li><li>○ Emission factors, formulas, etc. and their justification.</li><li>○ Expected materiality &amp; measurement accuracy (e.g., assumptions, explanations, calibration).</li><li>○ Potential exclusion of specific emission sources.</li><li>○ Adjustments for new assets or asset divestment.</li><li>○ Quality control procedures (audits, comparisons, recalculations).</li><li>○ Contact persons responsible for the carbon footprint and the report.</li></ul></li><li>▪ Data used for calculating the carbon footprint including:<ul style="list-style-type: none"><li>○ Energy consumption data.</li><li>○ Fuel consumption data.</li><li>○ Production data (e.g., tonnes of waste, kWh of electricity produced).</li><li>○ Raw material consumption data.</li><li>○ Passenger and employee surveys.</li><li>○ LTO cycle information.</li><li>○ Other data (e.g., private vehicles, public transport, surface access, travel, de-icing, APUs).</li></ul></li><li>▪ Data presentation/analysis (e.g., graphs, tables, comparisons, progress towards target, trends, uncertainties) by scope (1, 2, 3) and emission source.</li><li>▪ Documented procedures for identifying sources and quantities of emissions.</li><li>▪ Samples of data sources (e.g., invoices, delivery notes).</li><li>▪ Assurance processes to which the airport or its operations are subjected (e.g. internal audit, external reviews and certifications). □</li><li>▪ References.</li></ul> <p>① Data sources should be available for review by the verifiers. Verifiers may request additional information to the one listed above.</p> |
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## 6 Setting & Achieving Emissions Reduction Targets

Airports at level 2 and above should set a challenging but realistic target for emissions reduction. In order to attain or remain at level 2 and above, airports should demonstrate annual improvement in scope 1 and 2 emissions against a three-year rolling average. Ultimately, airports must demonstrate achievement of their target in accordance with the target year they have set. When setting the target the airport should take into consideration financial, operational and business requirements and constraints, availability of technologies, monitoring and reporting requirements, the views of stakeholders, etc.

### 6.1 Selecting Absolute vs Intensity Targets

Airports should decide between an absolute and an intensity target:<sup>13</sup>

**Absolute target:** A target defined by reduction in absolute emissions over time (e.g., reduce CO<sub>2</sub> emissions by 25% below 2015 levels by 2020 or reduce CO<sub>2</sub> emissions by 10,000 tonnes below 2015 levels by 2020).

**Intensity target:** A target defined by reduction in the ratio of emissions and a business metric over time. In the case of airports the target should be expressed either as tonnes of CO<sub>2</sub> per passenger or as tonnes of CO<sub>2</sub> per Traffic Unit (TU), defined as 1 passenger movement or 100 kg cargo arriving or departing (e.g., reduce CO<sub>2</sub> emissions per passenger by 15% below 2015 levels by 2020; reduce CO<sub>2</sub> emissions by 0.20 kg/passenger below 2015 levels by 2020; reduce CO<sub>2</sub> emissions per TU by 10% below 2015 levels by 2020).

① The programme recognises that airports may have existing targets (e.g., targets based on government requirements or Corporate Social Responsibility reporting) that do not relate directly to the targets described above. In other cases the organisational boundary of their footprint may differ from the minimum requirements for *Airport Carbon Accreditation*. In such cases the Administrator will generally accept the existing targets as long as suitable evidence of performance versus those targets is available. In recognition of the unique circumstances at each airport this will be considered on a case-by-case basis.

① The airport shall provide a verified carbon footprint of the base year to be used for the target as well as an explanation of the selection of the base year.

### 6.2 Achieving Reductions & the Three-Year Rolling Average

An airport must demonstrate annually emission reductions against a three-year rolling average for the specific type of target it has selected (i.e., absolute or intensity). This works as follows: The year being reported (i.e., Year 0 emissions) should be compared with the arithmetic mean (i.e., average) emissions of Years -1, -2 and -3. If an airport joining or upgrading to level 2 or beyond does not have complete historical data to enable it to calculate the full three-year average, it may compare Year 0 emissions with Year -1 or the average of Years -1 and -2 emissions. As soon as three years of historical data become available, the airport shall compare its Year 0 emissions to the rolling three-year average. Airports entering the programme directly at level 2 or above must verify any historical carbon footprints they are using for comparison against Year 0.

① Even though all airports that have the choice of an electricity supplier must report their carbon footprint following both the location and the market based approach, there are different requirements for level 2 and for level 3 and 3+ airports to demonstrate emissions reductions. Airports at levels 3 and 3+ can use either the location based or market based method. However, airports at level 2 shall only use the location based method, even where they are upgrading to level 3 or 3+. Once they have

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<sup>13</sup> For a comparison between absolute and intensity targets airports can review p. 76 of the Greenhouse Gas Protocol.

attained accreditation at level 3 and 3+ they can use either the location or market based method. The reason for this differentiation is to encourage airports to continuously improve their carbon management performance.

### **6.3 Adjusting the Three-Year Rolling Average for Investment or Divestment**

After joining the programme, it is possible that an airport will add new assets (e.g., terminals) and/or divests old assets (e.g., baggage handling). It is therefore necessary to show the effect of the new assets or the divestment on the previous years' carbon footprints to enable a like-for-like comparison. The following principles will apply.

#### **6.3.1 Divestment**

In the case of divestment the airport should re-calculate the footprint for the past three years excluding the emissions from the asset, which has been divested. These new historical emissions should be used to calculate the average against which the current year's performance will be compared.

#### **6.3.2 New Assets**

For three years after the new asset is in operation there will not be sufficient data to provide a three-year historical average for that new asset. The programme wishes to see the impact of the new asset as early as possible. Therefore, from the time that the new asset is added to the airport's operations, the airport should adopt the principles of Section 6.2 at the earliest possible time.

##### **6.3.2.1 Example of Adjustment with New Assets**

An airport has had one terminal (T1) for many years. For 2012 the calculation of the three-year rolling average for T1 is not a problem as the airport has emissions data for 2011, 2010 and 2009. The same is true for the calculations for 2013, 2014 and 2015.

In midyear 2016 it opens terminal 2 (T2), while T1 remains open. In 2016 it has emissions from T1 and partially from T2. Therefore for 2016, when demonstrating its improvements the airport should report T1 emissions versus the three-year rolling average for T1 only (2013, 2014 and 2015). For 2017 it should again compare the emissions of T1 versus the average performance of T1 only (2014, 2015, 2016) because it has no full historical data for T2.

However, for 2018 the airport should compare the performance of T1 and T2 versus the performance of T1 and T2 in 2017 only, as there is only one year of historical data for the combined operation. For 2019 the airport should compare the performance of T1 and T2 versus the average performance of T1 and T2 in 2017 and 2018, as there are two years of historical data for the combined operation. From 2020 the airport will be able to compare its performance of T1 and T2 versus the full three-year rolling average again (2017, 2018, 2019). Figure 10 presents the above information in a table format.

**Figure 10: Example of Emission Calculations from New Assets**

| In Year .....  | 2012                 | 2013                 | 2014                 | 2015                 | 2016                             | 2017                 | 2018          | 2019               | 2020                    |
|--|----------------------|----------------------|----------------------|----------------------|----------------------------------|----------------------|---------------|--------------------|-------------------------|
| The airport has the following terminals in operation:  | T1                   | T1                   | T1                   | T1                   | T1 + in midyear<br>T2 opens      | T1+T2                | T1+T2         | T1+T2              | T1+T2                   |
| The airport shall measure emissions from ...   | T1                   | T1                   | T1                   | T1                   | T1 + partial T2<br>since opening | T1+T2                | T1+T2         | T1+T2              | T1+T2                   |
| In order to demonstrate improvement versus the three-year rolling average the airport shall compare the emissions of ... | T1 in 2012           | T1 in 2013           | T1 in 2014           | T1 in 2015           | T1 in 2016                       | T1 in 2017           | T1+T2 in 2018 | T1+T2 in 2019      | T1+T2 in 2020           |
| ...with the average emissions of ...   | T1 in 2009 2010 2011 | T1 in 2010 2011 2012 | T1 in 2011 2012 2013 | T1 in 2012 2013 2014 | T1 in 2013 2014 2015             | T1 in 2014 2015 2016 | T1+T2 in 2017 | T1+T2 in 2017 2018 | T1+T2 in 2017 2018 2019 |



## 7 Carbon Management Plan

At level 2 and above, an airport should develop a Carbon Management Plan. The purpose of the Plan is to demonstrate the meaningful efforts by the airport to reduce its emissions in line with the set target and policy statement. At minimum the Plan should cover scope 1 and 2 emissions as they have been defined in the carbon footprint. After its initial development, the Plan should be updated at least every three years.

Airports must provide supporting written evidence as required in the application form to demonstrate that the Plan is being implemented effectively. Confirmation from the airport's verifier is required (in accordance with the verification timelines described in Section 10.3) that a Plan has been formulated and implemented. Airports can incorporate the Carbon Management Plan within other programme reports.

### 7.1 Contents of the Carbon Management Plan

A Carbon Management Plan should contain at least the following parts:

- Responsibility, resource allocation, and organisational structure.
- Carbon management initiatives.
- Implementation plan.
- Communication, awareness, and training.
- Self-assessment/auditing.

The following sections provide recommendations on the contents of each part.

#### 7.1.1 Responsibility, resource allocation and Organisational Structure

Senior/Executive management commitment and clear allocation of roles and responsibilities are essential to the success of any management programme. The Plan could incorporate the following features:

- Allocation of human and financial resources for the development and implementation of management plans.
- Appointment of an Airport Energy/Carbon/Climate Change Manager to lead and manage the airport's Carbon Management Plan.
- Establishment of a cross-airport Energy/Climate Change Team/Committee to bring together a wide range of airport functions, such as technical, environmental, financial, and operational. This group can define the strategic direction for the airport, ensure targets and action plans are realistic and resources are allocated appropriately, review progress and overcome constraints.

#### 7.1.2 Carbon Management Initiatives

There is a wide range of carbon management initiatives that an airport can consider, including:

- Improved energy efficiency.
- Use of low carbon energy sources on site.
- Procurement of green electricity (e.g., RECs).

ACI's *Guidance Manual: Airport Greenhouse Gas Emissions Management* (2009) provides some useful examples, including the following:<sup>14</sup>

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<sup>14</sup> Additional resources for carbon management initiatives include ATAG's, *Aviation Climate Solutions* (2016) (See <http://www.atag.org/our-publications/latest.html>) and ACI's, *Policy & Recommended Practiced Handbook* (7<sup>th</sup> Edition, 2009) (See <http://www.aci.aero/Publications/Full-Publications-Listing>).

- Modernisation of power, heating and cooling plants.
- Generation, use or purchase of electricity from renewable sources.
- Design, inclusion or retrofitting of “smart” and energy efficient buildings and component technologies, including double glazing, window tinting, variable shading, natural lighting, LED (light emitting diode) lighting, absorption-cycle refrigeration, and heat recovery power generation. LEED and BREEAM building certification programmes can provide guidance.
- Modernisation of vehicles and GSE, and use of alternative fuels for buses, cars and other air and land side vehicles, including compressed natural gas, hydrogen, electric, and hybrid vehicles.
- Driver education on fuel conserving driving and implementation of no-idling policy.
- Solid waste management that includes recycling and composting.
- Provision of public transport and rapid transit to/from the airport including buses, light rail and trains.
- Educational campaigns (or using by-laws) to reduce vehicle idling, individual passenger drop-off and pick-up, etc.
- Encouragement of alternative fuel or hybrid taxis, rental and other cars using incentives such as priority queuing, parking cost reduction and priority parking areas.

### **7.1.3 Implementation Strategy**

An implementation strategy is useful in order to describe the means by which carbon management initiatives will be carried out. It may include topics such as objective, project design, management and roles, risk management, timelines, monitoring, evaluation, checklists, reporting, etc.<sup>15</sup>

### **7.1.4 Communication, Awareness & Training**

The success of any management plan is highly dependent on the competencies and participation of employees and other stakeholders. When assessing training and information needs, an airport could consider the level of understanding of the business risks presented by climate change, job specific knowledge and skills required by those whose activities have a direct impact on the airport’s carbon footprint, the need for a general level of awareness of the airport’s progress and any specific behavioural changes required on the part of users of energy consuming equipment and facilities, communication and provision of training to third parties and business partners, etc. For more information airports can also consult the section on the Stakeholder Engagement Plan.

### **7.1.5 Self-Assessment & Auditing**

Auditing and self-assessment can help an airport keep track of progress and identify areas for improvements. Airports should define processes for assessing performance and prioritising actions. This could be done by using a Carbon Management Matrix, which can provide insight into the effectiveness of carbon management plans and identify areas where more work is required.<sup>16</sup>

Airports may also undertake specialised studies (e.g., life-cycle assessment or energy efficiency studies), provide training to key departments, project managers and third parties to develop relevant skills, or integrate energy and carbon assessments and auditing into existing airport audit and inspection arrangements.

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<sup>15</sup> Resources that may support an airport’s implementation activities include ISO 14064-2: “Greenhouse gases -- Part 2: Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements;” U.K. Government, Department of Business, Innovation & Skills, “Guidelines for Managing Projects,” [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/31979/10-1257-guidelines-for-managing-projects.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/31979/10-1257-guidelines-for-managing-projects.pdf) and the Project Management Institute <http://www.pmi.org/default.aspx>

<sup>16</sup> For the development of the Matrix airports can consult <https://www.carbontrust.com/resources/tools/energy-management-self-assessment-tool> which explains a similar Energy Management Matrix.

## 8 Stakeholder Engagement Plan

At level 3 and above, an airport must demonstrate that it has formulated and effectively implements a Stakeholder Engagement Plan. *Airport Carbon Accreditation* accepts that an airport can guide and influence but cannot control stakeholder (i.e., third parties) operations. Therefore, the airport should demonstrate that it has on-going dialogue, shares best practices, and promotes cooperation with stakeholders with the aim of reducing emissions from major stakeholder operations. The airport will be judged on whether it is making a real and thoughtful effort to engage the stakeholders and not on the outcome of stakeholder engagement. Nevertheless, it is considered as best practice to achieve emissions reductions from stakeholder sources.

After its initial development, the Plan should be revised at least every three years. The revised Plan should include updated information about stakeholders, joint initiatives, achievement of targets, training and awareness, etc. During the interim years the airport should provide evidence as part of its application regarding the implementation of the Plan. Confirmation from the airport's verifier is required (in accordance with the verification timelines defined in Section 10.3) that a Plan has been formulated and implemented. Airports may wish to incorporate the Stakeholder Engagement Plan within other programme documentation.

The programme does not require the airport to establish additional management committees and meetings specifically for stakeholder engagement. In many cases there are already regular meetings between the airport and stakeholders (e.g., airlines, handlers, catering, retail) at which a new agenda item could be discussed regarding carbon management.

The Stakeholder Engagement Plan should include at minimum the following information:

- Identification, description, categorisation and prioritisation of the stakeholders the airport can guide and influence. These are the stakeholders associated with scope 3 emissions and will generally include airlines, ground handlers, cargo handlers, catering companies, waste management contractors, public and local transport operators, passengers, decision makers, planners, employees, tenants, retailers, cargo operators, civil works and other contractors, etc.
- Allocation of clear roles and responsibilities for engaging and facilitating partnerships with key stakeholders.
- Evidence of engagement and outcomes (e.g., minutes of meeting, presentations, press releases, trainings).
- A clear implementation plan of the intended approach to engaging with stakeholders including proposed actions and timings.

The implementation plan may include a combination of the following:

- Awareness campaigns and training.
- Interactive sessions (forums, workshops, committees) to become familiar with airport policies and objectives and to support their implementation.
- Joint initiatives to improve infrastructure use, operations, etc. (e.g., reduction of running and taxiing times).
- Minimum performance standards for buildings, retail units, operations, vehicle fleets, etc.
- Incentives and cost structures to encourage good practices (e.g., incentives for recycling, differential charges for aircraft depending on emissions).
- Carbon management and energy efficiency clauses into third party contracts.
- Performance audits.
- Site visits.
- Communication initiatives.
- Other.

Airports may wish to consult additional resources to facilitate the formulation of their Stakeholder Engagement Plan including UNEP's "Stakeholder Engagement Manual," which is based on five steps.<sup>17</sup>

① The programme accepts evidence of complying with EUROCONTROL's Collaborative Environmental Management (CEM) specifications as adequate proof of a Stakeholder Engagement Plan.<sup>18</sup> Airports operating in states that belong to the European Civil Aviation Conference (ECAC) may also use a dedicated web-tool proposed by EUROCONTROL that will be available shortly to support CEM implementation and generate the required evidence material.

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<sup>17</sup> For more information see: <http://www.unep.fr/shared/publications/pdf/WEBx0115xPA-SEhandbookEN.pdf>

<sup>18</sup> The CEM specification is available at: <https://www.eurocontrol.int/collaborative-environmental-management-cem>

## 9 Offsetting

In the context of this Guidance, carbon offsetting refers to the use of carbon credits to compensate for unavoidable airport CO<sub>2</sub> emissions. To achieve carbon neutrality at level 3+, airports shall compensate for their scope 1 and 2 residual emissions as well as scope 3 airport staff business travel emissions that cannot be reduced by other means by purchasing offsets.

For the purposes of the programme acceptable offset instruments are characterised by the following quality criteria:

- Verification (i.e., offset is verified by an accredited third party according to a standard).
- Additionality (i.e., reductions are demonstrable when compared to business as usual scenario and would not have occurred without the offsetting project).
- Permanency (i.e., reductions are maintained over time).
- Avoidance of leakages (i.e. the offsetting project does not entail any increase in emissions beyond the project boundary).
- No double counting (i.e. emission reductions should be accounted for only once).

Airports should provide information about the offset instruments used and where possible the projects that have generated the credits. The following offset instruments are allowed under *Airport Carbon Accreditation*. For further information, airports interested in achieving level 3+ are advised to consult the forthcoming Offset Guidance Document (expected in 2017) and in the meantime, to contact the helpline.

### 9.1 Certified Emission Reductions (CERs) and Emissions Reduction Units (ERUs)

CERs and ERUs are compliance instruments that are generated from Clean Development Mechanism (CDM) and Joint Implementation (JI) projects. An independent Executive Board of the United Nations Framework Convention on Climate Change (UNFCCC) governs these projects. CERs can be bought from the UNFCCC (through their Climate Neutral Now website, [www.climateneutralnow.org](http://www.climateneutralnow.org)) or from relevant companies (specialist traders, banks, etc.). ERUs can be bought from specialised companies (specialist traders, banks, etc.).

### 9.2 European Union Allowances (EUAs)

EUAs are the carbon credits traded in the EU Emissions Trading Scheme (ETS). Allowance units are freely allocated or auctioned to members of the EU ETS and can then be purchased through the carbon market. EUAs can be bought from specialised companies (specialist traders, banks, etc.) or from companies selling their surplus allowances.

① An airport which wishes to become carbon neutral and has an on-site combustion plant which falls under the EU ETS must 1. Possess enough EUAs/CERs/ERUs to cover its EU ETS regulated emissions and 2. Purchase and retire further carbon allowances/credits equal to the total emissions to be offset.

### 9.3 Verified Emission Reductions (VERs)

VERs represent carbon credits from worldwide projects that reduce CO<sub>2</sub> emissions and are used by organisations that voluntarily want to reduce their carbon footprint. VERs are offered widely by non-government organisations and other carbon offset programmes and are typically verified by a third party (e.g., Verified Carbon Standard). VERs can be bought from relevant companies (specialist traders, banks, etc.). Furthermore, depending on the specific VER instrument, the organisation behind the projects may sell VER credits directly.

## Figure 11: The Gold Standard

The Gold Standard is a standard and certification body that works to ensure that climate and development funding has a far-reaching positive environmental and social impact. Although not an offsetting instrument, the Gold Standard ensures that projects and the relevant offsetting instruments, such as CERs and VERs, actually reduce CO<sub>2</sub> emissions in a responsible manner.<sup>19</sup>

It was established in 2003 by WWF and other international NGOs as a best practice benchmark for energy projects developed under the UN's CDM. It is now endorsed by 80+ NGOs and has several hundred projects in 70 countries. The Gold Standard has become a global benchmark for the highest integrity and greatest impact in climate and development initiatives.

### 9.4 Bespoke Offset Projects

Airports may choose to directly fund external projects locally or internationally that lead to carbon reductions. When this is the case, the airport should get the project and generated credits certified under one of the permissible instruments above.

① New carbon offset instruments continue to be introduced as new emissions trading schemes are developed. If an airport believes that a scheme, which currently does not appear under this section, should be permitted under the programme, the airport can raise the matter to the Administrator and the inclusion of the scheme under the programme will be considered, in consultation with the programme Task Force and Advisory Board. Airports applying at level 3+ should not purchase offset credits, which currently do not appear under this section and before having checked with the Administrator whether they will be accepted.

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<sup>19</sup> Information acquired from <http://www.goldstandard.org>. See also: [http://wwf.panda.org/what\\_we\\_do/how\\_we\\_work/businesses/climate/offsetting/gold\\_standard](http://wwf.panda.org/what_we_do/how_we_work/businesses/climate/offsetting/gold_standard)

## 10 Independent Third-Party Verification

### 10.1 Why Verify?

The primary aim of independent third party verification is to provide confidence that the reported information, statements, and plans represent a faithful, true, and fair account of an airport's efforts. Ensuring transparency and verifiability is crucial. The more transparent, well controlled and well documented an airport's emissions data and systems are, the easier it will be to verify.

### 10.2 What to Verify?

Independent third-party verification is an essential requirement for all levels of *Airport Carbon Accreditation*. The verifier must attest that the following application information meets the programme requirements (depending on the specific level of accreditation): policy statement, carbon footprint, emissions reduction target and base year, comparison of annual emissions versus the 3-year rolling average, Carbon Management Plan, Stakeholder Engagement plan, offsets and (in case of the three-year renewal cycle for level 3/3+) the emissions reductions achieved for at least one scope 3 emissions source. The verification of the carbon footprint should be conducted in accordance with the requirements of ISO14064-3 and in line with the GHG Protocol. Figure 12 presents the verification requirements at each level of accreditation.

**Figure 12: Verification Requirements per Level of Accreditation**

| Accreditation Level                                | Verification Requirements   |
|--|---|
| Level 1 - Mapping                                  | Policy statement & carbon footprint   |
| Level 2 - Reduction                                | Level 1 requirements and emissions reduction target, carbon footprint of base year of target setting (once), annual emissions lower versus the 3-year rolling average, and Carbon Management Plan |
| Level 3 - Optimisation                             | Level 2 requirements and Stakeholder Management Plan  |
| Level 3 - Optimisation<br>Three year renewal cycle | Level 3 requirements and quantitative verified emissions reductions achieved for at least one scope 3 emissions source for which there is an active stakeholder engagement initiative in place    |
| Level 3+ Neutrality                                | Level 3 requirements and offsets  |
| Level 3+ Neutrality<br>Three year renewal cycle    | Level 3+ requirements and quantitative verified emissions reductions achieved for at least one scope 3 emissions source for which there is an active stakeholder engagement initiative in place   |

For example, for level 1 the verifier must attest that the policy statement and carbon footprint meet the programme requirements. For level 2 in addition to the level 1 verification requirements, the verifier must attest that the carbon footprint of the base year, the emissions reduction target, the annual emissions versus the 3-year rolling average, as well as the development and implementation of the Carbon Management Plan meet the programme requirements. The carbon footprint of the base year is to be verified only once, unless the airport decides to change it, in which case the new base year needs to be verified as well.

Where an airport provides both a location based and a market based carbon footprint, both carbon footprints must be verified. Where the verification evidence is not available in English, the verifier must speak the language it is in, and confirm that it has been reviewed.

① Airports entering the programme directly at level 2 or above must provide verification regarding any historical carbon footprints they are using for comparison as part of the three-year rolling average.

### 10.3 When to Verify?

Airports are required to submit a verified application (including carbon footprint, policy and any other programme information relevant to their level of accreditation) on their initial year of application, and every second year subsequently as long as they remain at the same level of accreditation. Airports participating at level 3 or 3+ on a three-year renewal cycle are required to submit a verified application every third year. For the years when verification is not required, the airport shall still submit a non-verified carbon footprint.

If an airport upgrades from one level to another, it must submit a verified application, regardless of whether or not the previous year's application was verified. Furthermore, an airport entering at or upgrading to level 2 and beyond shall also verify once, the chosen base year against which its target is set. Examples of verification timelines are presented in Figure 13.

**Figure 13: Examples of Verification Timelines**

| Airport Year | A   | B   | C   |
|--------------|---|---|---|
| 1            | <b>Apply at level 1</b><br>Verification required for year 0 application.      | <b>Apply at level 1</b><br>Verification required for year 0 application.  | <b>Renew with three-year renewal cycle at level 3/3+</b><br>Verification required for year 0 application. |
| 2            | <b>Renew at level 1</b><br>Submission of non-verified application for year 1. | <b>Upgrade to level 2</b><br>Verification required for year 1 application, as well as one-time verification of the base year. | <b>No renewal required</b><br>Submission of non-verified application for year 1.                          |
| 3            | <b>Renew level 1</b><br>Verification required for year 2 application.         | <b>Renew at level 2</b><br>Submission of non-verified application for year 2.   | <b>No renewal required</b><br>Submission of non-verified application for year 2.                          |
| 4            | <b>Renew level 1</b><br>Submission of non-verified application for year 3.    | <b>Renew Level 2</b><br>Verification required for year 3 application.   | <b>Renew Level 3/3+</b><br>Verification required for year 3 application.                                  |

### 10.4 Who Can Verify?

Verification is provided by approved verifiers only. An airport shall directly appoint one of the approved verifiers listed on the programme's website. Verifiers are approved on an individual basis and not on a company basis. These individuals meet specific *Airport Carbon Accreditation* requirements, making them eligible to undertake verification services for this programme. Individuals or companies that wish to have their personnel approved should consult the programme's website or contact the Administrator.

① The Administrator is responsible for overseeing the appointment and training of third party verifiers. All prospective verifiers must demonstrate relevant experience, participate in the verifiers' webinar and pass an associated short examination. Airports may, and are strongly encouraged to participate in this webinar, which is available to them at no cost as it provides useful information on the following topics:

- Background of the programme.
- The roles of the Administrator, verifier, etc.
- Key requirements at each level of participation.
- Key requirements for verification.
- Key verification outputs.

① Any consultants assisting airports in preparing all or part of their application shall not provide any



verification services to the airport. Consultants should never appoint a verifier on behalf of the airport. Third party verification must be carried out completely independently of the consultant or airport. Furthermore, neither ACI regional offices nor the Administrator can recommend verifiers or provide verification services.

① Third party verifiers will generally charge for verification services. These charges are separate to the programme accreditation fees and are payable directly to the verifier.

① Off-site verification (i.e., verification where the physical presence of the verifier at the airport is not necessary) may be allowed under specific conditions (e.g., lack of availability of verifiers in the region, excessive transportation costs). In case an airport wishes to benefit from off-site verification, it should contact the Administrator. The Administrator will approve requests for off-site verification on a case by case basis.

## **10.5 Verification & the Concept of Materiality**

The concept of “materiality” is essential to understanding the process of verification. Materiality refers to the concept that individual errors or the aggregation of errors, omissions and misrepresentations could affect the carbon footprint and influence decisions made from this information. Materiality is used to identify information that, if omitted or miss-stated, would significantly misrepresent the footprint as a whole and ensure that such material discrepancies are omitted/minimised.

The acceptable level of materiality is determined by the verifier based on the agreed level of assurance. As a general rule, an error is considered to be materially misleading if its value exceeds 5% of the total inventory for the part of the organisation being verified. Therefore, airports should make every effort to provide high quality data and other pertinent information to the verifier.

It is acknowledged that due to data availability, assumptions required to estimate emissions from some scope 3 emissions sources, sampling methodologies and varying data that are not under an airport’s direct control, it may be difficult to determine if the 5% error threshold has been maintained. For those emissions sources, the airport should be able to demonstrate to the verifier that:

- The data available is as accurate as reasonably possible.
- The data has been prepared in line with the scope 3 reporting guidelines contained in the section on Carbon Footprint at Level 3 and 3+.
- Any assumptions made in calculating the emissions from those sources are properly documented.

## 11 Special Cases

### 11.1 Beyond Programme Requirements

An airport may choose to voluntarily expand the scope of the footprint, its carbon management activities or its stakeholder engagement activities beyond the minimum participation requirements. For example an airport may include additional greenhouse gases in the footprint, target setting, etc. In that case it should use the CO<sub>2</sub>-equivalent metric (CO<sub>2</sub>-e). In addition, an airport at level 1 and 2 can voluntarily report on scope 3 emissions.

### 11.2 Carbon Footprint Reporting Cycle

Airports may want to change their carbon footprint reporting cycle (this is the 12 month period over which the airport reports its carbon emissions). This is acceptable as long as, when moving into the new reporting cycle, there is no gap in emissions mapping. For example, if an airport last time reported its emissions between January 1<sup>st</sup>, 2014 and December 31<sup>st</sup>, 2014, and wants to start reporting annually between May 1<sup>st</sup> and April 30<sup>th</sup>, then the airport needs to next submit a carbon footprint covering the period May 1<sup>st</sup>, 2014 to April 30<sup>th</sup> 2015. In this example, a carbon footprint for the period May 1<sup>st</sup> 2015 to April 30<sup>th</sup> 2016 only would not be acceptable.

### 11.3 Small Airport Group Applications

Airport groups (i.e., operators with multiple airports) may aggregate some or all of its small airports (defined as airports with less than 500,000 passengers/year) into a single “Small Airports Group” application. All airports within the application need to opt for the same level of accreditation. The same requirements described earlier for each level of accreditation are applicable, noting the following permissible voluntary adjustments for all the airports of the “Small Airport Group”:

- Development of one common carbon footprint.
- Formulation of a common Carbon Management Plan (for level 2 and higher).
- Development of a common Stakeholder Engagement Plan (for level 3 or higher).

If an airport decides to adopt the above approach, the contribution/role of each individual airport should be clear in each of the above documents (e.g., carbon footprint of every airport should be distinguishable).

① If during the renewal of a “Small Airports Group” application, an airport of the group does not meet any more the level specific requirements (e.g., level 2 requirements), the operator should remove that airport from the “Small Airports Group” application and submit a separate application for that specific airport for the appropriate level of accreditation (e.g., level 1).

① If an airport group submits a “Small Airport Group” application, which does not include all its sub-500.000 passenger/year airports, it cannot add small airports during the programme year. Additional small airports can only be added to the “Small Airport Group” application on renewal of the accreditation, in which case the renewal fee will be applied.

### 11.4 Level 3 and 3+ Three-Year Renewal Requirements

When an airport has been accredited for three or more consecutive years at level 3 or 3+, it may choose to move from an annual to a three yearly renewal cycle. As a result accreditation costs will be reduced significantly. In order to do so, the airport must be able to demonstrate that quantitative, verified emissions reductions have been achieved for at least one scope 3 emissions source for which there is an active stakeholder engagement initiative in place. These reductions must be the result of an initiative in which the airport has played a significant role.

A relevant report shall include a description of the emissions reduction initiative, the airport's role in the initiative and the specific stakeholder(s) involved, the emissions improvement metric (absolute or intensity target), timeline, roles, etc. The report shall provide details on the scope 3 emissions reductions (in tCO<sub>2</sub>/year or tCO<sub>2</sub>-e/year) that have been achieved versus a 'business as usual' baseline scenario, i.e. by comparing it with what would have happened in the absence of the emissions reduction initiative. Emissions reductions should be verified. The airport can choose initiatives for any emissions source that it can guide or influence, and is not limited to the mandatory scope 3 emissions that must be reported at level 3/3+. The sections on the Carbon Management Plan and the Stakeholder Engagement Plan contain examples of how an airport may seek to achieve reductions of scope 3 emissions.

An airport must have its full application, including the scope 3 emissions reductions, verified upon moving to the three-year renewal cycle, and again upon renewal in three years' time. On provision of the verified information above, the airport's accreditation will be valid for three years. However the airport must also continue to provide non-verified carbon footprint data to the Administrator on an annual basis.

① When an airport has been accredited for three or more consecutive years at level 3 and upgrades to level 3+, it can still take advantage of the three-year renewal provisions. Similarly, when an airport has been accredited for one or two consecutive years at level 3 and upgrades to level 3+, it can also take advantage of the three-year renewal provisions, as soon as the required time requirements are met. For example, after initial accreditation at level 3 in year 0, one successful renewal at the same level in year 1 and an upgrade to level 3+ in year 2, then in year 3 the airport can adopt the three-year renewal cycle.

### **11.5 Renewal with an Increase in Emissions (Limited Deviation)**

In order to participate at level 2 and above, airports must demonstrate an on-going reduction in their scope 1 and 2 emissions versus a three-year rolling average. However, there may be circumstances beyond an airport's control (e.g., extreme climatic conditions, large sporting events, implementation of costly infrastructure projects) under which an airport may have a stabilisation or increase of emissions in one year despite an overall downward trend in emissions. Therefore, airports are allowed one deviation per four-year period from the time of first accreditation at level 2 or above, subject to a clear evaluation process and to the final approval of the Advisory Board. An airport contemplating this approach should undertake the following actions:

1. Contact the Administrator prior to submitting an application.
2. Assess whether it can:
  - Calculate temperature corrected figures and assess the effect on emissions. Using established calculation methodologies (e.g., 'degree days' at the airport's location); the airport must demonstrate which factors (climatic or other) are responsible for an increase in emissions.
  - Identify the exact proportion of CO<sub>2</sub> emissions that has been caused each year by the extreme event. This can be done by taking an emissions source and directly comparing the annual or monthly emissions with several years/months of data in which the extreme event was not present. The airport can then exclude these extra emissions from the reduction calculations.
3. Provide the Administrator with evidence to support the above calculations, including a description of how the airport will get back on track, i.e. achieve real and tangible year on year emissions reductions.

The Administrator will review the documents and determine whether there is a case for a limited deviation. If so, the Administrator will formulate a recommendation to the Advisory Board, which would take the final decision. □ If in the following year the airport cannot demonstrate a reduction in emissions, it will not be able to renew its accreditation at level 2 or above, unless it can factually demonstrate that specific circumstances beyond an airport's control, have led to several years of increasing emissions. The information provided will be validated by the Advisory Board.

## **11.6 Use of Degree Day Data**

Degree days offer a methodology for determining the amount of heating (or cooling) required for a given location, by considering the long-term average weather conditions at that particular site. Each year the amount of degree days required will vary slightly, depending on the weather over the year. By using the long-term average for a particular location, an airport can determine whether an increase or reduction in heating/cooling in a given year is due to the weather conditions or changes in energy efficiency.<sup>20</sup>

*Airport Carbon Accreditation* accepts the use of degree day data by an airport to correct for annual variation in the weather in order to make a comparison with the established long-term average. Airports and their verifiers must ensure that the data used is from a robust and valid source, and that it is used consistently over time.

## **11.7 Use of Renewable Energy Certificates (RECs)**

RECs are transferable certificates or credits indicating generation of a particular quantity of energy from a renewable energy resource. RECs are technically not offsets. Whereas offsets account for a reduction of emissions achieved in a given project, RECs indicate that the production of electricity from renewable sources did not generate any emissions. Therefore, RECs do not represent a claim of emission reductions compared to a baseline and can only be used to report in a more precise manner an airport's scope 2 emissions as per the market based method.<sup>21</sup> Airports using RECs to reduce their scope 2 emissions should then purchase offset credits from other approved instruments to offset their scope 1 emissions and scope 3 business travel emissions.

## **11.8 Application Requirements Not Met**

If an airport does not meet the minimum requirements of the level applied for, the Administrator will notify and discuss with the applicant (to the degree possible) about the requirements to achieve certification.

If an airport decides to downgrade to a lower level, the Administrator will credit the difference between the fee paid for the first application and that due for an application at the lower level. Alternatively, the difference may be credited to the airport's renewal fee for the following year.

If an airport decides that it cannot meet the requirements for any of the levels of the programme, it has the right to withdraw its application. In this case the Administrator will refund 50% of the application fee, recognising the effort that the Administrator has put into providing support and assessing the application.

In case of a disagreement between the airport and the Administrator regarding the merits and requirements of the application, the airport has the right to appeal to the Advisory Board, via the respective ACI regional offices. In case of an appeal, the application documentation and fee paid will be held by the Administrator without any further work being undertaken by the Administrator in respect to that application, pending the outcome of the appeal process. The outcome of any appeal to the Advisory Board will be final and will be binding upon both the airport and the Administrator.

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<sup>20</sup> For more information see: <http://www.eea.europa.eu/data-and-maps/indicators/heating-degree-days-1>

<sup>21</sup> For more information see: <http://resource-solutions.org/site/wp-content/uploads/2015/08/RECsOffsetsQA.pdf>

## 12 Example of Accreditation

In order to provide more clarity regarding the programme's requirements the following section introduces an example of accreditation.

Middletown airport serves 15.000.000 passengers and handles 200.000 flights per year. In 2017 the airport's management decided to become accredited at Level 1 and gradually worked its way to Level 3+.



In 2017, the CEO of the airport signed a policy committing to greenhouse gas reduction, which was placed on the website and in the annual sustainability report. The airport's environmental department developed a carbon footprint for 2016 scope 1 and 2 emissions (Figure 14). All the information regarding the development of the footprint (e.g., methodology, data, graphs) was placed in a Carbon Footprint Report. The airport's application was verified by an approved independent verifier. The airport was accredited in 2017.

**Figure 14: 2016 Carbon Footprint of Middletown Airport  
(Scope 1 & 2 emissions)**

| Source of Emissions  | Scope | Tonnes of CO <sub>2</sub> |
|--|-------|---------------------------|
| Petrol consumption by airport vehicles and other equipment | 1     | 1.050                     |
| Diesel consumption by airport vehicles and other equipment | 1     | 2.180                     |
| LPG consumption by airport vehicles and other equipment    | 1     | 250                       |
| Diesel consumption by generators                           | 1     | 155                       |
| Electricity consumption                                    | 2     | 37.050                    |
| <b>Total</b>   |       | <b>40.685</b>             |

In 2018 the airport renewed at the same level of accreditation, and therefore the carbon footprint for 2017 (i.e., 40.000 tonnes of CO<sub>2</sub>) and relevant application did not have to be verified.



In 2019 the airport decided to upgrade to Level 2. Firstly, the airport calculated the 2018 carbon footprint (i.e., 39.000 tonnes of CO<sub>2</sub>). It also set an absolute target to reduce by 2025 its scope 1 and 2 emissions by 20% below the 2015 base year (i.e., 42.000 tonnes); a reduction target of 8.400 tonnes of CO<sub>2</sub>.

Middletown airport formulated a detailed Carbon Management Plan explaining how the target will be achieved (e.g., initiatives, responsibilities, timeline, communication) and when necessary provided relevant evidence (e.g., minutes of meeting, copies of training material). Furthermore, the airport demonstrated a reduction of the 2018 emissions (39.000 tonnes) versus the three-year rolling average of 2015 (42.000 tonnes), 2016 (40.685 tonnes) and 2017 (40.000 tonnes) emissions, i.e. 40.895 tonnes.

The application was verified, including the carbon footprint of 2018, the target base year (i.e., 2015), the emissions reduction target, as well as that 2018 emissions are lower versus the 3-year rolling average. In addition, the verifier confirmed that the Carbon Management Plan was developed in accordance with the Guidance Document.



In 2020 the airport upgraded to Level 3. The 2019 carbon footprint was updated to include, besides scope 1 and 2 emissions, scope 3 emissions from the LTO cycle, engine testing and APUs, third party GSE operations, electricity re-sold to partners/tenants, surface access by passengers and airport company staff as well as airport company staff business travel (Figure 15). The airport also continued to demonstrate reduction of its scope 1 and 2 emissions; the 2019 emissions (38.070 tonnes) were lower compared to the three-year rolling average of 2016 (40.685 tonnes), 2017 (40.000 tonnes) and 2018 (39.000 tonnes) emissions, i.e., 39.895 tonnes.

**Figure 15: 2019 Carbon Footprint of Middletown Airport  
(Scope 1, 2, & 3 emissions)**

| Source of Emissions                                | Scope | Tonnes of CO <sub>2</sub> |
|--|-------|---------------------------|
| Petrol consumption by vehicles and other equipment | 1     | 830                       |
| Diesel consumption by vehicles and other equipment | 1     | 1.800                     |
| LPG consumption by vehicles and other equipment    | 1     | 200                       |
| Diesel consumption by generators                   | 1     | 190                       |
| Electricity consumption                            | 2     | 35.050                    |
| <b>Total scope 1 &amp; 2</b>                       |       | <b>38.070</b>             |
| LTO cycle  | 3     | 136.200                   |
| Engine testing                                     | 3     | 100                       |
| APU  | 3     | 12.825                    |
| Electricity resold to partners/tenants             | 3     | 16.875                    |
| 3 <sup>rd</sup> party GSE                          | 3     | 2.200                     |
| Surface access                                     | 3     | 158.500                   |
| Airport staff business travel                      | 3     | 110                       |
| <b>Total scope 3</b>                               |       | <b>326.810</b>            |
| <b>Total scope 1, 2, &amp; 3</b>                   |       | <b>364.880</b>            |

At the same time the airport developed and implemented a detailed Stakeholder Engagement Plan that was based on the extensive ongoing cooperation with airlines, ground handlers, and other important stakeholders. Some of the key activities included awareness and training programs, a car pooling initiative, an annual GHG management workshop, and an energy efficiency project with retail companies. The application was verified in accordance with the relevant requirements (e.g., footprint, lower 2019 emissions versus the 3-year rolling average), while the verifier also confirmed that the Stakeholder Engagement Plan was developed in accordance with the Guidance Document.



As the airport was making good progress towards the 2025 target and had been implementing a number of effective measures, in 2021 the management decided to achieve carbon neutrality the following year. The airport first assessed different pathways to carbon neutrality, combining various emission reductions and offsetting options. Following this assessment, the airport decided to first procure electricity from renewable energy sources through the purchase of RECs, to further reduce its 2021 carbon footprint by 2.000 tonnes, and then offset the remaining, unavoidable, emissions. After the purchase of the RECs, the carbon footprint of 2021 showed scope 1 and 2 emissions of 34.900 tonnes of CO<sub>2</sub> and airport staff business travel emissions of 100 tonnes of CO<sub>2</sub>. Consequently, in 2022 Middletown airport should offset 35.000 tonnes of CO<sub>2</sub>.

After a thorough market search, the airport concluded that the purchase of CERs from the UNFCCC (through the Climate Neutral Now website, [www.climateneutralnow.org](http://www.climateneutralnow.org)) was the best alternative. The management decided to buy offsets that were related to a methane avoidance project in Chile at a cost of 2.40 US\$/tonne. According to a working paper published by the Stockholm Environment Institute (SEI), these types of projects are characterized by high environmental integrity.<sup>22</sup> Therefore, the offsetting cost in 2022 was 84.000 US\$. The application was verified in accordance with the relevant requirements (e.g., footprint, lower 2020 emissions versus the 3-year rolling average, renewed Carbon Management Plan as three years had passed from its development), while the verifier also confirmed that the offsets had been purchased through an official market. As of 2022 the airport maintained carbon neutrality, offsetting annually the continuously declining CO<sub>2</sub> emissions.

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<sup>22</sup> Stockholm Environment Institute, Working Paper 2016-03, "Supply and sustainability of carbon offsets and alternative fuels for international aviation," by R. Bailis, D. Broekhoff and C. M. Lee, (2016).