



APPLICATION MANUAL

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1 Overview

Airport Carbon Accreditation (ACA) 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 and the addition of new levels of accreditation 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 and achieve emissions reductions. 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 European Commission, EUROCONTROL, the US Federal Aviation Administration (FAA) and 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. Independent third-party verification by an approved verifier is an essential component of the programme.

Airports can participate at one of five progressively ambitious levels of accreditation:

Level 1. Mapping;

Level 2. Reduction;

Level 3. Optimisation;

Level 4. Transformation; and

Level 5.

In addition, airports at Levels 3 and 4 can choose to offset their emissions, thereby achieving Level 3+ (Neutrality) and 4+ (Transition) respectively¹. In 2020, Levels 4 (Transformation) and 4+ (Transition) were added to *Airport Carbon Accreditation* to align it with the objectives of the Paris Agreement to limit the increase of global average temperature and aim to not exceed 1.5°C above pre-industrial levels. Levels 4 and 4+ have been introduced as an interim step towards the long-term goal of supporting airports in achieving Net Zero carbon emissions².

In 2023, Level 5 was added to *Airport Carbon Accreditation* to align with ISO Net Zero Guidelines IWA 42:2022 and existing Net Zero sector frameworks or commitments where applicable. Airports at Level 5 need to demonstrate that they have reduced their Scope 1 and 2 CO₂e absolute emissions by ≥90% and that any remaining residual emissions have been addressed using approved offset removals. Airports may purchase more offsets than required, as long as they have reduced their absolute CO₂e emissions by ≥90%. At Level 5, airports commit to achieving Net Zero in Scope 3 emissions by 2050, or sooner, aligned to ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable.

Airport Carbon Accreditation is aligned with the GHG Protocol, the ISO 14064 principles, and the ISO Net Zero Guidelines IWA 42:2022 which set the framework and management system to develop a carbon footprint and identify projects to reduce emissions³.

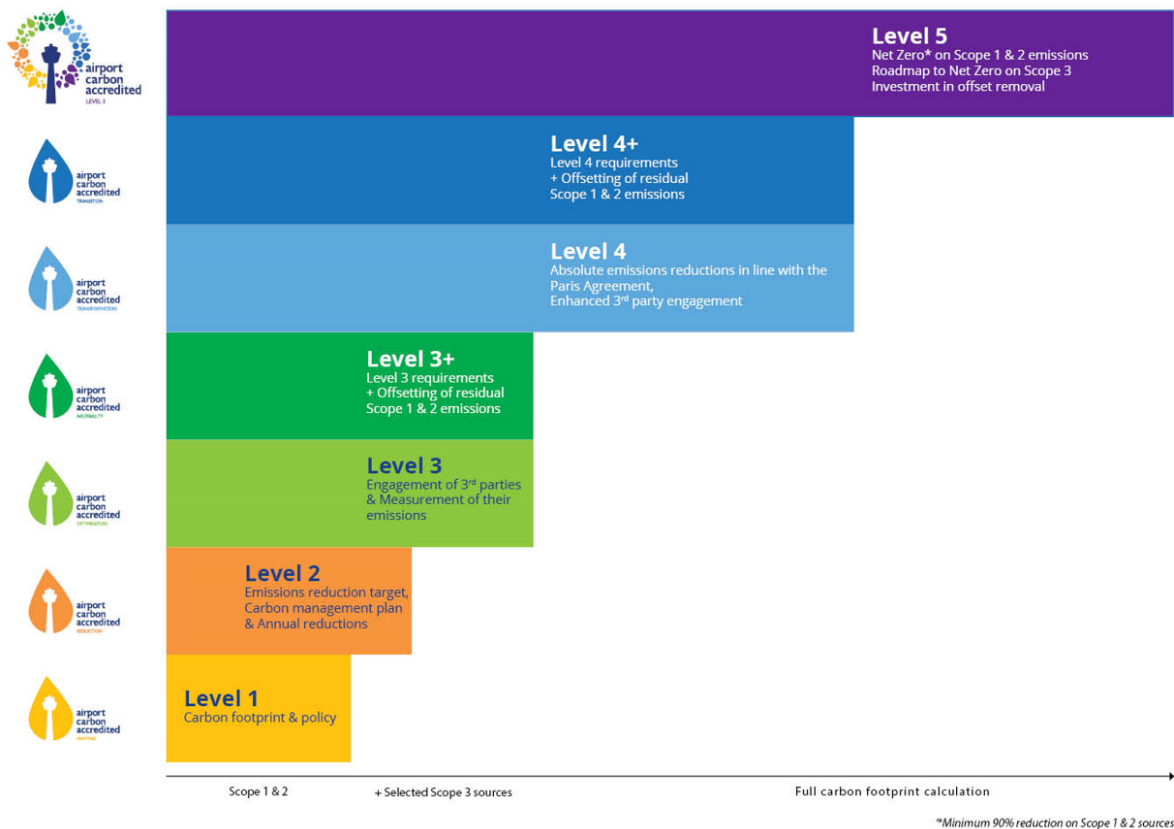
Figure 2 summarises the main requirements of the programme at each accreditation level.

¹ Offsets refer to emissions reductions or removals resulting from an action outside the organisation's boundaries, used to counterbalance the organisation's residual emissions.

² The Intergovernmental Panel for Climate Change (IPCC) has defined Net Zero emissions as the state 'when anthropogenic CO₂ emissions are balanced globally by anthropogenic CO₂ removals over a specified period.' Airports will therefore aim to reduce their absolute emissions to the greatest extent possible and address any remaining emissions through investment in carbon removal and storage.

³ Specific sections of this Application Manual rely heavily on the GHG Protocol, 2004 (and its subsequent amendments) and ISO 14064 and ISO Net Zero Guidelines IWA 42:2022. Copyright provisions described in these documents apply to their use in this Application Manual.

Figure 2 - Main Requirements of Airport Carbon Accreditation



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

Figure 3 - Summary of Participation Requirements at each Accreditation Level

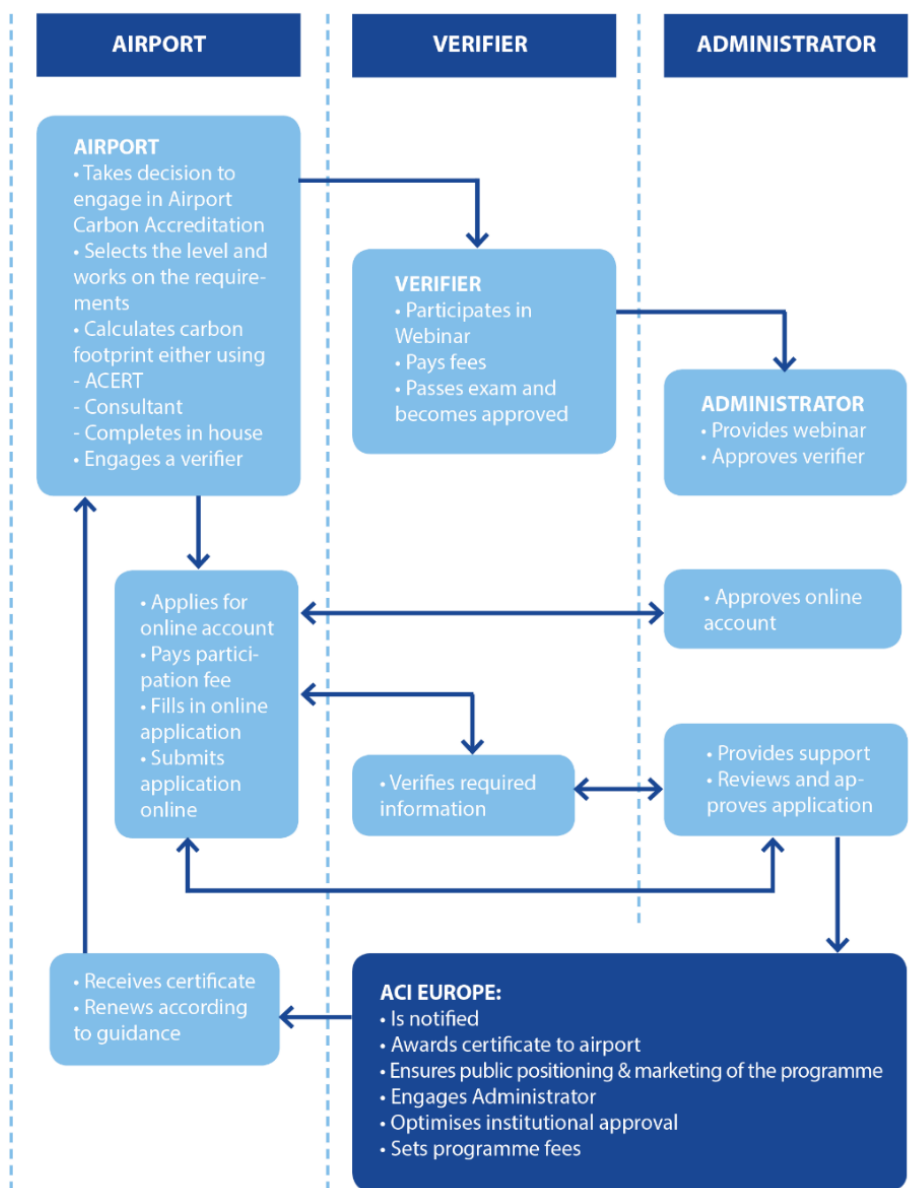
Required Elements	Level 1 (Mapping)	Level 2 (Reduction)	Level 3 (Optimisation)	Level 3+ (Neutrality)	Level 4 (Transformation)	Level 4+ (Transition)	Level 5
Policy Statement	Policy commitment to emissions reduction.				Policy commitment to absolute emissions reduction. For Net Zero commitment, the policy commitment is to reach and maintain $\geq 90\%$ absolute CO ₂ e emissions reductions in Scope 1 and 2 and commit to Net Zero in Scope 3 by 2050, or sooner.		Policy commitment: Maintain (having already achieved) $\geq 90\%$ absolute CO ₂ e emissions reductions in Scope 1 and 2 and achieve Net Zero in Scope 3 by 2050, or sooner, aligned to ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable.

Carbon Footprint	Emissions under airport control (i.e., Scope 1 and 2).	Scope 1 and 2 + select Scope 3 emissions.	Scope 1 and 2 CO ₂ e + all relevant Scope 3 categories as aligned to GHG Protocol Scope 3 Guidance.	CO ₂ e of Scope 1 and 2 and all relevant Scope 3 categories as aligned to GHG Protocol Scope 3 Guidance. Operators need to document and justify their decision on Scope 3 relevance.
Target and implementation	-	Formulation of a carbon emissions reductions target (absolute or relative) for Scope 1 and 2.	Formulation of a long-term absolute reduction target for Scope 1, 2 & 3 emissions, in line with the IPCC 1.5°C or 2°C pathways.	Achieve and maintain Scope 1 and 2 CO ₂ e absolute emissions reductions by ≥90%. Any remaining residual emissions to be addressed using approved offset removals. Reduce Scope 3 emissions to Net Zero by 2050, or sooner, aligned to ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable; develop a Net Zero roadmap to map out interim targets/milestones.
Target trajectory	-	No target trajectory required.	Definition of a target emissions trajectory and milestones leading to the target.	Map ≥90% absolute CO ₂ e emissions reductions Scope 1 and 2 trajectory from the baseline and update annually to prove it is maintained. By 2050 Scope 1, 2 and 3 emissions are reduced to ≥90% with offset removals for any residual emissions. Map Net Zero Scope 3 trajectory aligned to ISO Net Zero and/or to sector frameworks or commitments, where applicable. Define interim targets/milestones to demonstrate how Net Zero is to be achieved.
Target Compliance	-	Annual improvement against past 3-year-rolling average required.	Compliance assessed every 6 years through carbon footprint, and at interim milestones and target year. Up to 15% deviation from trajectory accepted. Milestones and targets must be met without any deviation.	Compliance assessed every 3 years, in line with renewal cycle. A missed target can only be approved by the Advisory Board in the case that it can be justified. Targets must not be missed by more than once each 3-year renewal period, or the airport will be asked to reapply to a more relevant level.

					Progress against Scope 3 interim targets/milestones need to be reported in the Net Zero roadmap and the roadmap needs to be updated every 6 years/ every 2 nd renewal period.
Carbon Management		Development of a Carbon Management Plan to achieve the target, with distinct requirements depending on the level of accreditation.			Development of a Carbon Management Plan to achieve the target, with distinct requirements depending on the level of accreditation.
Stakeholder Management	-	Development of a Stakeholder Engagement Plan.	Development of a Stakeholder Partnership Plan.		Development of a Stakeholder Partnership Plan. To achieve Net Zero in Scope 3 emissions airports will need to work closely with their value chain. See Section 3.6 and 8 for more guidance.
Neutrality	-	Offset of residual emissions (Scope 1, 2 and staff business travel). See ACA Offset Guidance.	-	Offset of residual emissions (Scope 1, 2 and staff business travel). See ACA Offset Guidance.	-
Offset Removals					Any implemented offset removals must be in line with scientific and/or regulatory approved solutions. For guidance, refer to the ACA Offset Guidance.
Renewal Cycle	Annually, Verified every 2 nd year.	Annually, Every 3 years under certain conditions; Unverified footprint in interim years.	Every 3 years, Unverified footprint in interim years.		Every 3 years; with a verified footprint for Scope 1, 2 and 3 in the interim years.
Approved verifiers	Level 1-3/3+ approved verifier.		Level 4/4+ approved verifier.		Level 4/4+ approved verifier with updated Level 5 training.

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 - Roles and Responsibilities in the Accreditation Process



This Application Manual provides concise, comprehensive 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.

In addition to the introduction of Level 5, this issue (#14) of the Application Manual introduces the following key changes:

- Introduction of CO₂e as the main measurement unit.
- Clarifications regarding the contents of the carbon footprint and the respective scopes.
- Updated reference to offsetting

Section 2 provides a general overview of the programme and Section 3 presents the requirements for each accreditation level. Sections 4 and 5 focus on inventory requirements, while Sections 6, 7, 8 focus on targets, the Carbon Management Plan and Stakeholder Engagement/Partnership Plans respectively. Section 9 briefly looks into offsetting and Section 10 analyses verification issues. Section 11 examines special cases, Section 12 explains the accreditation process, Section 13 provides an example of accreditation and Section 14 is the Appendix, introducing guidance on engaging a verifier.

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 www.airportcarbonaccredited.org while the participant Terms & Conditions are available at www.aca-application.org.

2.2 Independent Programme Administrator

The independent programme Administrator is appointed by ACI EUROPE and is WSP. The Administrator manages the application process and grants formal accreditation approval. It guides and supports airports through this process; helps to develop, enforce and update the accreditation criteria; 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 a verifier as this would constitute a conflict of interest.

① Once payment has been made, and the application has been verified and submitted to ACA Online, the review process will not exceed 15 calendar days in total excluding public holidays. This is subject to the application meeting the programme requirements. If the requirements are not met, and further clarification or information is required, the application review may take longer.

2.3 Online Application Tool

Application for accreditation (i.e., first-time accreditation, renewal, and upgrade) must be done through the online tool at www.aca-application.org.

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@wsp.com in case of questions in relation to the Application Manual, 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 2019 the band is based on 2017 official passenger figures). For band levels and fees contact the Administrator. In addition to these fees an airport should take into account the cost of preparing its application (e.g., internally or through a consultant) and the cost of the required third-party verification.

It is a requirement of the ACA Programme that accreditation fees need to be paid prior to the Administrator's review of the application. For airports renewing or upgrading their accreditation, payment cannot be delayed beyond 3 calendar months from the date of renewal of accreditation, unless prior specific agreement has been made with the Administrator and ACI EUROPE. Failure to pay the accreditation fees within this timeframe may result in limitations on the rights of airports under the Programme rules and may lead to immediate dismissal from the programme.

2.6 Confidentiality

All application data that are provided for any purpose will remain confidential. The Administrator prepares reports based on aggregate data that is not attributable 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, reporting on airport-specific best practice and case studies will only take place with the airport's explicit permission.

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, Sustainability 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 shall 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 and the renewal application shall 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 baseline year⁴ for the target.
- **Development of a Carbon Management Plan to achieve the target.** The airport shall 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 2 accreditation requirements.**
- **Revised Carbon Management Plan.** The plan shall be revised at least every three years, and during the interim years the airport shall provide evidence for the implementation of the plan.

⁴ Refers to quantified emissions at a specified year against which assessment of progress to a target can be performed. Definition adapted from ISO 2022, "Net Zero Guidelines, Accelerating the Transition to Net Zero," IWA 42:2022(E) (page 6).

3.3 Level 3 Optimisation



3.3.1 Requirements of Level 3 Accreditation

- **Fulfilment of all Level 2 accreditation requirements.**
- **Extended carbon footprint to include specific Scope 3 emissions.** This will comprise emissions from activities that are central to the airport's operations and that an airport is expected to guide or influence.
- **Development of a Stakeholder Engagement Plan.** The plan shall demonstrate that the airport has an 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.

3.3.2 Requirements of Level 3 Renewal

- **Fulfilment of all Level 3 accreditation requirements.**
- **Revised Stakeholder Engagement Plan.** The plan shall be revised at least every three years and during the interim years the airport shall provide evidence for the implementation of the plan.

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 shall 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 shall fulfil the following requirements:

- **Fulfilment of all Level 3 renewal requirements.**
- **Update of the Stakeholder Engagement Plan.** The airport shall 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 in the interim years.**

3.4 Level 4 Transformation



3.4.1 Requirement of Level 4 Accreditation

- **Policy commitment to absolute emissions reduction.**
- **Carbon footprint to include additional (to Level 3) Scope 3 emissions.**
- **Formulation of an absolute carbon emissions reduction target.** The target shall be defined for the long-term and expressed in absolute terms only. The target amount and date shall be aligned to the IPCC 1.5°C or 2°C pathways.
- **Development of a Carbon Management Plan to achieve the target.** The airport shall define its trajectory to achieve its carbon emissions reduction target and the actions it expects to implement to remain on that trajectory.
- **Development of a Stakeholder Partnership Plan.** The Stakeholder Partnership Plan shall demonstrate that the airport actively drives third parties at the airport towards delivering emissions reductions themselves, either through their own reduction plans or through measures initiated by the airport operator.

3.4.2 Requirements of Level 4 Renewal

Accreditation at Level 4 has to be renewed every three years. The requirements to be fulfilled are:

- **Submission of a verified carbon footprint.**
- **Revised Carbon Management Plan.** The plan shall demonstrate that the airport has achieved in a timely manner any relevant long-term target or interim milestone that had been set.
- **Update of the Stakeholder Partnership Plan** with information about the progress of stakeholder emissions reduction against the overall objective for the stakeholders.
- **Annual submission of a non-verified carbon footprint in the interim years.**
- **Every second renewal (i.e., every six years), the airport shall demonstrate that it is on track with the forecast trajectory to their long-term target or interim milestone.**

3.5 Level 3+ Neutrality and 4+ Transition



3.5.1 Requirements of Level 3+ and Level 4+ Accreditation and Renewal

- **For Level 3+ airports:** Fulfilment of all Level 3 accreditation/renewal requirements. Airports at Level 3+ are also eligible to a three-year-renewal cycle.
- **For Level 4+ airports:** Fulfilment of all Level 4 accreditation/renewal requirements.
- **For Level 3+ and 4+ airports:** Offset of residual emissions. Airports should prioritise emissions reductions as much as possible and shall then submit evidence of offsets covering all Scope 1 and 2 residual emissions as well as Scope 3 airport operator staff business travel emissions. Any implemented offsets must be in line with scientific and/or regulatory approved solutions. For guidance, refer to the ACA Offset Guidance.

3.6 Level 5



3.6.1 Requirements of Level 5 Accreditation

- **Submission of a verified carbon footprint.** The carbon footprint needs to include Scope 1 and 2 emissions and all relevant categories of Scope 3 emissions as per the requirements of the GHG Protocol Scope 3 Guidance. Operators need to document and justify their decision on Scope 3 relevance.
- **Policy commitment** that $\geq 90\%$ absolute CO₂e emissions reductions in Scope 1 and 2 have been reached and will be maintained and a commitment to Net Zero in Scope 3 by 2050, or sooner, aligned to ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable.
- **Target trajectories.** Provide a $\geq 90\%$ absolute CO₂e emissions reductions Scope 1 and 2 trajectory from the baseline and update annually to demonstrate that it is maintained. Provide a Net Zero Scope 3 forecast trajectory, aligned to ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable. Forecast trajectory against the long-term commitment to Net Zero in Scope 3 by 2050 and interim targets.
- **Development of a Carbon Management Plan to achieve the targets.** The plan details the organisational carbon footprint and confirms the commitment to achieving Net Zero by 2050, or sooner. It shall include the following:
 - Commitment to Net Zero in all scopes,
 - Baseline emissions footprint,
 - Most recent year emissions reporting,
 - Target trajectory for Scope 1, 2 and 3 modelled,
 - GHG data management and improvement plans,

- GHG emissions reduction actions, and
 - Net Zero roadmap – outlining interim targets and milestones (e.g., Scope 3). The roadmap shall be updated every 6 years.
- **Development of a Stakeholder Partnership Plan to achieve Net Zero in Scope 3.** Airports need to work closely with their value chain to influence and support carbon reduction actions. To achieve Net Zero in Scope 3 emissions at airports it is important to:
 1. Assess current emissions sources and set clear, measurable goals.
 2. Engage with key stakeholders, including suppliers, employees, and airlines.
 3. Collaboratively develop and implement emissions reduction strategies across the Scope 3 supply chain.
 4. Continuously monitor progress, promote transparency, and adapt the plan to evolving sustainability goals and regulations.

Examples of approaches taken to engage stakeholders:⁵

1. **Supply Chain Engagement:** The top emitters in the value chain are identified from the GHG inventory and action is taken to prioritise engaging them on Net Zero; Stakeholders are requested to develop and provide carbon reduction plans or targets,
 2. **Industry Collaborations:** Businesses participate in industry-specific collaborations or initiatives to collectively address Scope 3 emissions challenges, share best practices, and drive change.
 3. **Innovation Partnerships:** Companies collaborate with research institutions and start-ups to develop and adopt innovative technologies and solutions for reducing emissions in their supply chain.
- **Offset Removals.** Any implemented offset removals must be in line with scientific and/or regulatory approved solutions. Relevant guidance is available at the Offset Guidance.

3.6.1 Requirements of Level 5 Renewal

Accreditation at Level 5 has to be renewed every three years. The key requirements to be fulfilled are:

- **Submission of annual verified carbon footprint.**
- **Revised Carbon Management Plan.** The plan shall demonstrate that the airport has achieved in a timely manner any relevant long-term target or interim milestone that had been set.
- **Update of Stakeholder Partnership Plan.** The plan shall provide information about

⁵ The Supply Chain Sustainability School has a lot of useful resources, when it comes to engaging with a supply change around sustainability. See: <https://www.supplychainschool.co.uk>

the progress of stakeholder emissions reduction against the overall objectives for the stakeholders as well as actions taken.

- **Update of Net Zero roadmap.** Every 2nd renewal cycle (i.e., every 6 years) the airport shall demonstrate progress toward the long-term target and milestones.

4 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 shall 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 shall 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) shall be categorised as Scope 1, 2 or 3 (Figure 5).

Figure 5 – Sample Overview of Scopes



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. or processes.

Scope 2: Indirect GHG emissions that occur from the generation of purchased electricity, steam, heat, or cooling⁶ consumed by the airport. Scope 2 emissions physically occur at the facility where purchased electricity is generated.

Scope 3: All other indirect emissions in the value chain of the airport operator that occur from sources not owned and/or controlled by the company (for example, purchased goods and services, aircraft movements, vehicles and equipment operated by third parties, off-site waste management, etc.). Such sources can be located inside or outside the airport premises (geographical boundary). They include upstream emissions (Categories 1-8: indirect emissions related to purchased or acquired goods and services, if relevant) and downstream emissions (Categories 9-15: indirect emissions related to sold products and services, if relevant)⁷. The range of Scope 3 emission sources has been expanded over time in order to respond to new evidence and reach compliance with various international standards and recommendations (Figure 6).

⁶ As per the GHG Protocol Scope 2 Guidance (2015), p. 5, the above four categories are collectively referred to as “electricity.” This Application Manual adopts the same approach.

⁷ Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011).

① Scope 3 includes only the direct emissions of sources not under the operational control of the airport operator, i.e., indirect emissions of emission sources not under control of the airport operator (“Scope 3 of Scope 3 sources”) are not mandated to be reported but can be reported on a voluntary basis if deemed reasonable.

4.3 Identification of Emissions Sources

When an individual airport operator is determining ‘relevant’ Scope 3 emissions, they are required, as per the GHG Protocol Scope 3 Standard, to decide what emission sources to include in their footprint and reporting based on a review of all 15 categories.

By following the guidance of the GHG Protocol, airports shall identify the relevant emissions sources and determine where they have direct control over emissions and where they can guide or influence emissions from within their value chain. Operators need to document and justify their decision on Scope 3 relevance⁸.

⁸ See Table 6.1 of the Corporate Value Chain (Scope 3) Accounting and Reporting Standard (2011).

5 The Airport GHG

5.1 Inventory Calculation Principles

The GHG inventory 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 operator's emissions. It is preferred and expected that airports use data from the previous year, e.g., 2023 data when applying in 2024, but the Administrator will also accept data from the year before, e.g., 2022, with proper justification.

Airport operators shall account for all relevant Scope 1, 2 and 3 emissions in units of CO₂e and disclose and justify any exclusions, depending on the requirements of the respective accreditation level.

Units of CO₂e shall account for at least the following greenhouse gases: Carbon Dioxide (CO₂), Methane (CH₄), Nitrous Oxide (N₂O), Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), Sulfur Hexafluoride (SF₆) and Nitrogen Trifluoride (NF₃), following GHG Protocol Guidance documents.

Airport operators shall account for emissions from each Scope 3 category according to the minimum boundaries and the descriptions listed in Figure 6.

① Carbon footprints shall allow year on year comparisons. If an airport expands or reduces the footprint scope in subsequent years, the carbon footprints of the three years preceding the new carbon footprint shall also be adjusted accordingly to allow for a "like for like" comparison.

① Airports shall 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.

5.2 Emissions Calculations Requirements

5.2.1 Overview

Figure 6 shows the reporting requirements of emissions sources at each accreditation level as well as the relevant reporting scope.

Figure 6 – CO2e Emission Sources and Reporting Requirements at Levels 1 to 5

CO2e Emission Source	Description	Accreditation Level				
		1	2	3, 3+	4, 4+	5
Scope 1: Direct emissions airport operator						
Mobile sources	<u>Description:</u> Solid, liquid, and gaseous fuels for vehicles and machinery (air-/landside)	✓	✓	✓	✓	✓
Stationary sources	<u>Description:</u> Solid, liquid, and gaseous fuels for boilers, furnaces, emergency generators, fire training (incl. handheld extinguishers)	✓	✓	✓	✓	✓
Process emissions	<u>Description:</u> Waste and sewage treatment (if by airport operator)	✓	✓	✓	✓	✓
Process emissions	<u>Description:</u> Refrigerant losses from air-conditioning units (not stock volume), fugitive emissions from de-icing chemicals (if applied by airport operator)	✓	✓	✓	✓	✓
Scope 2: Emissions from purchased energy						
Electricity	<u>Description:</u> Purchased electricity from a remote source, being this inside or outside the airport boundary. <u>Method:</u> Location- and market-based method (if market solutions are available).	✓	✓	✓	✓	✓
Remote heat, steam, cooling	<u>Description:</u> Purchased heat or steam from a remote source, being that inside or outside the airport boundary.	✓	✓	✓	✓	✓
Scope 3: Upstream and downstream indirect (value chain) emissions						
Category 1: Purchased goods and services	<u>Description:</u> This category includes goods and products (“useables”) with their life-cycle-emissions the airport operator purchases. <u>Method:</u> It is recommended to include all relevant products that are material to the GHG inventory. <u>Useable goods (non-exhaustive examples):</u> <ul style="list-style-type: none"> • Company clothing: Workwear and uniforms for airport operator staff. • Paper products: Print and hygiene paper products • Construction materials: Concrete, steel, glass • Water: Emissions associated with the tap water supply. <i>Fuels and energy are covered in Category 3</i>				✓	✓
	<u>Description:</u> This category includes third party services contracted by and provided to the airport operator. <u>Method:</u> It is recommended to include all relevant services in the inventory. <u>Services (non-exhaustive examples, if provided by third party):</u> <ul style="list-style-type: none"> • Construction work of assets (buildings, surfaces, installations) • Cleaning services • Repairs and maintenance services (only of own assets) • Horticultural and green space maintenance services • Fire Services • Shuttle services (contracted out, airside, landside) • Financial, fiduciary, legal, planning, consulting services 				✓	✓
Category 2: Capital goods	<u>Description:</u> This category includes the airport operator owned fixed assets and their embodied carbon (cradle-to-gate). <u>Method:</u> It is recommended to include for each of the 4 subcategories and any other capital goods. <u>Capital goods groups:</u> <ul style="list-style-type: none"> • Vehicles (cars, busses, trucks, machinery) • Buildings (terminals, office, cargo, parking, maintenance retail space) • Operating surfaces (aircraft and non-aircraft surfaces airside; roads, parking landside.) • Installations (e.g., people-mover, baggage handling, aircraft energy systems, conveyer belts, security, IT-infrastructure) 				✓	✓
Category 3: Fuel- and energy-related activities (not in Scope 1 or 2)	<u>Description:</u> This category includes the well-to-tank emissions of fuels, electricity, and heat that the airport operator purchases for its own use (and that is reported under Scope 1 and 2). <u>Method:</u> It is required to include all fuel types and procured electricity (and				✓	✓

	<p>other energy types)</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Fuels procured (well-to-tank) • Electricity and heat (well-to-tank) • Electricity (transportation & distribution losses, TDL) 					
Category 4: Upstream transportation and distribution	<p>--May not be relevant to airports, but subject to review--</p> <p><u>Description:</u> This category could include suppliers for parts to assemble for manufacturing at the airport. Other supply transportation is reported under Category 11 (landside traffic).</p>					
Category 5: Waste generated in operations	<p><u>Description:</u> This category includes waste and wastewater.</p> <p><u>Method:</u> It is required to include solid waste (different fractions) and wastewater from the airport operator (standard) or all tenants (optional, if it cannot be singled out, as this is Scope 3 of Scope 3)</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Waste disposal (airport operator: minimum; or total airport: optional) • Wastewater treatment (airport operator: minimum; or total airport: optional) 			✓	✓	✓
Category 6: Business travel	<p><u>Description:</u> This category includes all business travels of the airport operator staff, but not the commuting (cf. category 7).</p> <p><u>Method:</u> To include staff business trips for all modes of transport.</p>			✓	✓	✓
Category 7: Employee commuting and home office	<p><u>Description:</u> This category includes the airport operator staff commuting and home office (remote) work which is optional as per GHG protocol guidance.</p> <p><u>Method:</u> To include the airport operator staff commuting for all modes of transportation and assess the volume of home office/remote work</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Airport operator staff commuting (home <=> workplace) with different modes of transport. • Home Office: full-time-equivalent hours of home office/remote work with electricity/heating/colling emissions. 			✓	✓	✓
Category 8: Upstream leased assets	<p><u>Description:</u> This category includes emissions from assets that the airport operator leases and uses and that are not already covered in Scope 1 (e.g., fuels for leased machines) or Scope 2 (e.g., energy for leased office space). This would have to be described and assessed on a case-by-case basis.</p>				✓	✓
Category 9: Downstream transportation and distribution	<p>--May not be relevant for airports, but subject to review--</p> <p><u>Description:</u> The airport does not transport the service (=platform) to the end-user (=passenger); but the end-user (=pax) uses the service (=airport platform) directly, which is Category 11</p>					
Category 10: Processing of sold products	<p>--May not be relevant for airports, but subject to review--</p>					
Category 11: Use of sold products.	<p><u>Description:</u> This group includes the aircraft main engines, APU, and the maintenance of the engines (MRO) emissions.</p> <p><u>Method:</u> Depending on the accreditation level, aircraft are assessed in the LTO-cycle or the full flight, and APU and engine testing added.</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Aircraft LTO: Landing- and take-Off Cycle of all aircraft at the airport. 			✓		
The airport's "product sold" is the infrastructure and service (runways, stands, roads, parkings, etc) that third parties can use for the purpose of air travel.	<ul style="list-style-type: none"> • Aircraft full flight: full flight, either calculated as "one-way full flight" (origin to destination) or as "half-distance return flight" (origin to half distance plus half-distance back to airport) which in this usage is equal. 				✓	✓
	<ul style="list-style-type: none"> • Aircraft APU: Auxiliary Power Unit of aircraft. 			✓	✓	✓
	<ul style="list-style-type: none"> • Aircraft MRO: fuels from engine testing 			✓	✓	✓
	<p><u>Description:</u> This group includes all Scope 1 emissions from services rendered by tenants and partners not included in aircraft emissions or in purchased goods and services by the airport (cf. category 1).</p> <p><u>Method:</u> It is required to include all direct emissions from fuels and fugitive substances from tenants and partners.</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Tenant/Partner: Fuels (handling, Ground Support Equipment, fire service, 			✓	✓	✓

	<p>emergency generators, own boiler houses)</p> <ul style="list-style-type: none"> • Tenant/Partner: fugitive sources: refrigerant losses, de-icing chemicals. 					
	<p><u>Description:</u> This group includes all landside access traffic from airport tenant staff, visitors, and passengers, plus goods and cargo delivered to the airport, including Road Feeder Service (RFS).</p> <p><u>Method:</u> To include direct emissions from all modes of transport (road, rail, water).</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Public: Access traffic • Tenant staff, visitor: Access traffic • Cargo: Goods, cargo, RFS 			✓	✓	✓
Category 12: End-of-life treatment of sold products	<p>--May not be relevant for airports, but subject to review--</p> <p><u>Description:</u> This category includes the emission occurring when the airport infrastructure is decommissioned.</p>					
Category 13: Downstream leased assets	<p><u>Description:</u> This category includes the energy and electricity emissions of assets of the airport operator, leased to airport tenants or partners or to which the airport supplies energy (their Scope 2 emissions).</p> <p><u>Method:</u> To include energy and electricity consumption that are sold to third parties.</p> <p><u>Elements:</u></p> <ul style="list-style-type: none"> • Tenant/Partner: Energy • Tenant/Partner: Electricity 			✓	✓	✓
Category 14: Franchises	<p><u>Description:</u> This category includes emissions from franchises. A franchise is a business operating under a license to sell or distribute goods or services of the airport operator at the airport and needs to distinguished form tenants or partners. To be defined on case-by-case basis and reported if relevant.</p>				✓	✓
Category 15: Investments	<p><u>Description:</u> This category relates to emissions from investments of the airport operator in assets with emissions (e.g., a pension fund investing in real estate). This would also include majority shareholder in other airports. This has to be defined on a case-by-case basis and reported if relevant.</p>				✓	✓

5.2.2 Carbon Footprint at Levels 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:

- **Mobile sources (Scope 1):** automobiles (airside/landside), trucks, employee buses, etc.
- **Stationary sources (Scope 1):** Boilers, furnaces, burners, turbines, heaters, incinerators, engines, firefighting exercises, generators, etc.
- **Process emissions (Scope 1):** On site waste and wastewater management (if by airport operator), refrigerant losses, de-icing chemicals (if applied by airport operator), etc.
- **Other emissions (Scope 1):** Fire suppression, 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 shall 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 shall 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) shall not be part of Scope 1 emissions. They shall 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) shall be included in Scope 1 or Scope 2 emissions irrespective of the financial or legal arrangements.

① Refrigerants can be lost from chillers, air handling units and fire suppression systems etc. Airports can calculate the emissions from refrigerants processing using the following information: 1. Type of refrigerant, and the respective global warming potential; The mass of refrigerant refill ('top up') required to be added by maintenance staff within the reporting year. Where refrigerant refill activity is performed less than once per year, it may be advisable to adjust the mass on a pro-rata basis, according to the period since the previous refill.

Box 1 - De-icing

Airport operators shall make every effort to reduce CO₂e emissions from de-icing chemicals. Given the critical importance of de-icing chemicals to flight safety, and the fact that currently there are no equivalent carbon-free alternatives, offsets (i.e., reductions/removals for Levels 3+/4+, removals for Level 5) can be used to compensate for CO₂e emissions from runway and/or aircraft de-icing chemicals etc.

If the airport operator is directly responsible for de-icing activities (being this surface or aircraft de-icing), emissions are a Scope 1 emission source. In the near term, if a solution cannot be found for carbon-free alternatives, it can be addressed as an exclusion of the 10% residual emissions threshold eligible for offset removals under Level 5. If de-icing is performed by third parties, the emissions fall under Scope 3. Specifically, they are in Category 1 (Purchased Goods & Services) if contracted by the airport operator, or Category 11 when the services are rendered under third party contracts.

Although a challenge to reduce, there is a role for airport operators to play here in finding solutions. As part of the Airports Stakeholder Partnership Plan, they could work with scientists and supply chains to carry out research and trials to try and find a viable solution.

Calculation

Airports shall report emissions from the use of de-icing substances for treatment of surfaces and aircraft. Emissions result from the biological or chemical degradation of de-icing substances, e.g., propylene glycol for aircraft de-icing and potassium formate for surface de-icing, when exposed to air during use or when washed into drainage systems. The emissions shall be calculated with the following inputs:

- The volume and percentage concentration of the de-icing chemical.
- The emissions factor for the degradation of the de-icing chemical.

A possible emissions factor for the degradation of propylene glycol can be found in the ACERT tool. Airports can also calculate their own emissions factors using chemical equations. Where other de-icers or calculation methodologies are used, airports shall provide details of the calculation method with justification and assumptions made.

Emissions factors shall be adjusted where a diluted solution is used, as the emissions factors would only be applicable for undiluted de-icing substances. For example, if a de-icing solution used is 1 part water and 1 part de-icing chemical, the emissions factor should be halved.

5.2.3 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+ shall include as a minimum Scope 3 emissions from the following specific sources in the carbon footprint:

- 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 shall report on emissions from all aircraft using the airport, including commercial airlines, private aviation, helicopters, and cargo, but excluding military flights. Emissions data shall 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 datasheets⁹.
 - 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 shall provide details of the calculation method with justification and assumptions made.

⁹ <https://www.easa.europa.eu/document-library/icao-aircraft-engine-emissions-databank>

Airports shall provide information on any uncertainties. Furthermore, reporting on emissions from aircraft cruising is not required. However, voluntary reporting of such emissions is considered to be good practice.

- APUs and engine testing¹⁰.
- 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, forklifts, tractors, cargo loaders). Note that GSE belonging to the airport shall be included in Scope 1 emissions.
- Landside access emissions (staff and passengers travelling both to and from the airport). Airports shall supply data on landside access emissions with an explanation of assumptions and methodologies (e.g., questionnaires, reports, national databases)¹¹.
- 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.
- Airport company staff business travel. Emissions from staff business travel shall 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 possible, but calculations based on distance are acceptable¹².
- Waste and wastewater treatment by the airport and third parties. Airports shall report on the emissions occurring offsite from activities of the airport operator or third parties that originate onsite. This shall include the treatment and disposal of solid and liquid waste (including sewage) generated in the airport's operations. Emissions can be calculated using the average-data method set out in Category 5 of the GHG Protocol, Technical Guidance of Calculating Scope 3¹³. Airports can calculate emissions with the following inputs: 1. Total mass/volume of waste generated in operations; 2. Proportion of waste being treated by different methods (e.g., percent landfilled incinerated, recycled; percent of sewage treated by different methods); 3. Emissions factors for specific waste treatment and disposal methods¹⁴. Where other methodologies are used for calculating these emissions, airports shall provide details of the calculation

¹⁰ Airports can consult ICAO's Doc 9889, Airport Air Quality Manual (2015).

¹¹ Airports can consult Section 7 of the Greenhouse Gas Protocol, Technical Guidance for Calculating Scope 3 Emissions (Version 1.0, 2013) at [Scope 3 Calculation Guidance | GHG Protocol](#)

¹² For airline flights ICAO has developed a useful application. See <http://www.icao.int/ENVIRONMENTAL-PROTECTION/CarbonOffset/Pages/default.aspx>

¹³ Airports can consult Category 5 of the Greenhouse Gas Protocol, Technical Guidance for Calculating Scope 3 Emissions (Version 1.0, 2013) at [Scope 3 Calculation Guidance | GHG Protocol](#)

¹⁴ Airports can find further information on calculating process waste emissions from the 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 5, Waste at <https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol5.html>

method with justification and assumptions made. Airports shall provide information on any uncertainties.

① Airports may also include additional significant CO₂e 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 shall use the location-based methodology, but may provide a market-based Scope 3 figure if they have a choice of energy supplier(s).

5.2.4 Carbon Footprint at Level 4 and 4+

In addition to the carbon footprint requirements of Levels 1, 2 and 3, airports applying for Level 4 or 4+ shall include additional Scope 3 emissions sources, as per Figure 6, noting the following select issues:

- **Mobile sources (Scope 3): Third party non-road construction vehicles and plant emissions**

Airports shall report on emissions from fuel used in non-road construction vehicles, generators, and on-site plants. Construction emissions shall only be calculated for machinery used by third parties in relation to any building owned, operated or financially supported by the airport operator. This excludes any emissions associated with the access of on-road vehicles to the airport site.

Only emissions associated with the construction phase need to be calculated and reported (i.e., embodied carbon for sourcing and manufacturing of construction materials is not required).

Where other methodologies are used for calculating construction emissions, airports shall provide details of the calculation method with justification and assumptions made. Airports shall provide information on any uncertainties.

- **Aircraft sources (Scope 3): All aircraft full flight (climb, cruise and descent emissions):**

Airports shall report on emissions from all aircraft using the airport, including commercial airlines, private aviation, helicopters, and cargo, while military flights may be excluded. Airports shall apply the “one-way” flight calculation approach, whereas for international flights, the flight departing the airport is calculated to the first arrival airport abroad¹⁵. A

¹⁵ The UNFCCC requires that each state develops national inventories of greenhouse gas emissions. The IPCC has developed guidelines on how to do this: IPCC Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Inventories, Chapter 2.5. As for international aviation, the Guidance Material on ECAC Methodology for Emissions Calculations 2003 defines “For the UNFCCC,

practical surrogate for calculating these emissions is using the amount of uplifted aircraft fuel at the airport. However, airports should note that using this method might lead to an overestimation of emissions for airports with high refuelling activity (where fuel is uplifted for several flights of an aircraft) and an underestimation of emissions for airports with little refuelling activity (usually smaller airports, where aircraft depart with fuel uplifted at a previous airport).

Alternatively, as a more advanced method, emissions data could be based on actual aircraft movements and the most precise data available to the airport, including the following inputs:

- Data for each flight, containing aircraft type and flight distance.
- Fuel flow data from the ICAO engine datasheets, re-modelled for cruise flight.
- Emission factor for jet fuel from the GHG Protocol or ICAO.

Where other methodologies are used for calculating aircraft emissions, airports shall provide details of the calculation method with justification and assumptions made. Airports shall provide information on any uncertainties.

① Airports will collect data on aircraft emissions and *Airport Carbon Accreditation* will use the data submitted by airports for the purposes of accreditation only. Therefore, *Airport Carbon Accreditation* shall not use this data for any other purposes, such as for the attribution of emissions from international flights to a specific airport or country, and *Airport Carbon Accreditation* will not disclose these data in any form. In addition, the aforementioned methodologies for calculating aircraft emissions will be periodically reviewed and may be updated from time to time to further improve accuracy.

① Although it is mandatory to include these additional Scope 3 emissions sources in the carbon footprint at Level 4 and 4+, it is not required that they be included as part of any third-party inclusive target scope.

5.2.5 Carbon Footprint at Level 5

Airports applying for Level 5 shall include all the relevant Scope 1, 2 and 3 categories within their carbon footprint calculations in line with the GHG Protocol Corporate Guidance and Standards, GHG Protocol Scope 2 Guidance and the Technical Guidance for Calculating

emissions of domestic flights are considered to be part of the national inventory of the country concerned. With respect to emissions of international flights (often referred to as 'emissions from aviation bunker fuels'), there is ongoing discussion on how to allocate these emissions to national inventories. As long as there is no agreement on which option to choose, the practice recommended to Parties is that they collect information on international aviation emissions on the basis of fuel sold in their country and submit it to the UNFCCC along with their national inventory, but not included in their national totals of greenhouse gas emissions". This recommendation implies that only fuel sold at the departure airport is considered and as such, only one-way flights are included in the country's emission report. In order to maintain consistency with this recommendation, airports do it exactly that way.

Scope 3 Emissions. The carbon footprint at Level 5 will include all GHG emissions, as the GHG Protocol Guidance states that companies shall account for and report the emissions of all the GHGs required by the UNFCCC/Kyoto Protocol, when calculating their corporate GHG inventory. Only if an emission source is below 5% of the overall carbon footprint it can be excluded.

The data quality and calculation methodology required for calculating an entire Scope 3 emissions inventory is outlined in the GHG Protocol Corporate Value Chain (Scope 3) Accounting & Reporting Standard. Level 5 requires a full Scope 3 GHG inventory, which is used to set a baseline against which the Net Zero 2050 (or sooner) target for Scope 3 will be measured.

In line with the IPCC report (2023) which relies on 2010 as a baseline, it is recommended that airports also use 2010 as a baseline. However, an airport can use a different baseline year, provided that it justifies its choice. The baseline year needs to account for all GHGs.

It is also recommended that the same baseline year be chosen for Scope 1, 2 and 3 emissions. However, if Scope 3 data is not available for the baseline year previously selected for Scope 1 and 2, then it is recommended to choose the most recent year for which the most data is available, with the exception of 2020 and 2021 due to the impact of the pandemic (as per the ACA Covid Addendum policy) and the fact that these years are not representative of business as usual.

Should airports need to adjust/recalculate their baseline, they should follow the “GHG Protocol, A Corporate Accounting and Reporting Standard,” Section 5, “Recalculating base year emissions.” Reasons for recalculations may include mergers, acquisitions, and divestures, changes in emission factors or data accuracy, updated calculation methodologies, identification of errors, etc.

5.2.6 Carbon Footprint Calculations

Airports shall 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), the airport’s own spreadsheets or an appropriate combination of these tools¹⁶.

Airports may use different tools and emissions factors that may be more up to date (e.g., emission factors published by the country’s relevant authority, emission factors calculated by the airport). In such cases the airport shall provide justification for the selection of the factors used.

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

¹⁶ For the GHG Protocol see <http://www.ghgprotocol.org/calculation-tools/all-tools> For ACERT see <https://store.aci.aero/form/acert/>

① For Scope 3 emissions, every effort shall 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.

5.2.7 Transition Schedule

With regard to the updated requirements for Scopes 1 and 2 (including CO₂e), the following transition schedule is defined:

- Airports already accredited at Levels 1, 2, 3/3+ (irrespective of a planned upgrade) shall complete the carbon footprint in CO₂e during the first renewal after December 2025 at the very latest.

Due to the special considerations of the Scope 3 emission sources for Levels 4 and 4+, the following transition periods for accredited airports are defined:

- Airports in the process of upgrading to Level 4/4+ shall complete the Scope 3 emissions inventory based on the requirements at the time of application.
- Airports, accredited at Level 4/4+ shall complete the expanded Scope 3 inventory in CO₂e during the first renewal after December 2025 at the very latest.

5.3 Special Cases

5.3.1 Calculation of Scope 2 Emissions: Location and Market Based Approach

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 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 shall 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 may also report using the market-based method. This implies that any emissions reductions (as well as residual emissions to be offset) need to be calculated with the method chosen.

The emissions factors associated with the location and market-based approaches are described in Box 2, which is consistent with the GHG Protocol Scope 2 Guidance (2015).

Box 2 - 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 connection 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 attributes¹⁷.
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 shall 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 review their relevant national regulations and apply the correct emission factor accordingly.
3. If an airport purchases electricity from the grid through any type of contractual agreement, the airport shall use the grid emissions factor. A contractual agreement is any type of contract between two parties for the sale and purchase of energy (e.g., electricity, district thermal 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 a market-based carbon footprint, an airport shall 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 shall use an emissions factor that accounts for these. If not, it shall examine option 2.
2. If an airport has any contracts for electricity (e.g., Power Purchase Agreements from a specific renewable energy source), it shall use the contract specific information. If not, it shall examine option 3.
3. If an airport's electricity supplier provides an emissions factor specific to the energy product it receives, it shall use this one. If not, it shall examine to option 4.
4. If an airport has access to its country wide residual mix, it shall use this one¹⁸. If this is unavailable, the airport shall apply 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 shall meet the following quality criteria. They shall:

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

¹⁷ Energy attribute certificates, including Guarantees of Origin (GOs) and Renewable Energy Certificates (RECs) are used as transferable certificates or credits indicating generation of a particular quantity of energy from renewable sources.

① If an airport is purchasing 100% renewable electricity and the emissions factor is not stated on the contractual agreement (e.g., energy attributes or Power Purchase Agreement) and is not otherwise specified by the supplier, then the airport shall use the emissions factor of 0 kg CO₂e /kWh. However, if an emissions factor is stated, the airport should discuss with their supplier what these emissions are related to. Any emissions associated with the generation of the renewable electricity, or the operation of the facility shall be reported by the airport as Scope 2. Any other emissions sources can be reported by the airport as Scope 3 on a voluntary basis.

5.3.2 Use of Biofuel

For the purpose of this manual, biofuel is an all-inclusive term for all biogenic, non-fossil sourced fuels (e.g., renewable natural gas/green gas, renewable diesel, biodiesel). The benefits of using biofuel as an alternative to conventional fuels should be accounted for in the airport's carbon footprint. The airport shall apply one of the following methodologies per each type of biofuel used in the airport's operations.

Purchased biofuel

CO₂e emissions from biofuels used directly at the airport (on-site) shall be reported using the emissions factor provided by the biofuel supplier. This emissions factor is usually zero – except if well-to-tank emissions (i.e., those associated with the processing and transportation of the fuel to the user) are taken into account by the supplier.

On a voluntary basis, airports may calculate the direct CO₂e emissions released through the combustion of biofuels and report it separately from the scopes in the carbon footprint. These emissions should be calculated by requesting the associated biogenic emission factors from the supplier or other relevant institutions (e.g., national authority).

Biofuel attribute certificates

In some markets, airports are able to purchase biofuel attribute certificates to compensate for the emissions associated with the use of fossil fuels on-site. In this situation, because the airport will be purchasing and using conventional fuels along with these certificates, the Scope 1 emissions from the use of these fuels shall be accounted for using the location-based approach. Airports may also report applying the market-based approach to demonstrate the benefits of using biofuel attribute certificates.

For the location-based approach, the emissions factor for the fossil fuel used by the airport shall be used to reflect the emissions actually generated. For the market-based approach, the airport shall use the appropriate emissions factor to reflect the purchase of

¹⁸ 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: <http://www.reliable-disclosure.org/electricity-disclosure/>

the attribute certificates from the supplier. This emissions factor is usually zero – except if well-to-tank emissions (i.e., those associated with the processing and transportation of the fuel to the user) are taken into account by the supplier.

Heat purchased from biofuel used by a third-party

If the airport purchases heat (i.e., steam) from biofuel that is used by a third-party, this will be accounted for in the airport's Scope 2 emissions using the emissions factor provided by the supplier for both location and market-based calculations.

Quality criteria

Emissions factors provided by the supplier shall meet the following quality criteria:

- In the case of biofuel used on-site, they shall:
 - Convey the direct GHG emission rate associated with the unit of biofuel.
- In the case of biofuel attribute certificates or heat purchased from biofuel used by a third party, they shall:
 - Convey the direct GHG emission rate associated with the unit of biofuel/heat and;
 - Be the only instrument that carries the GHG emission rate claim associated with that quantity of biofuel/heat.

Further considerations for use of biofuels

When considering the use of biofuels, products that are sourced from any of the voluntary biofuel certification schemes¹⁹, and which have EU Commission approval, are considered as best practice for ACA airports; the minimum standard will, however, in all cases, remain compliance with national regulation.

The following additional information is provided, for consideration by airports in their use of biofuels:

- Recommended biofuel certification schemes approved by the European Commission are listed on the Commission's website.
- Where these schemes are used biofuel attribute certificates must show that only 2nd or 3rd generation biofuels are purchased for airport operations.
- The following biofuel feedstocks are recommended to airports and should be used to guide airports' decisions in this context, across the ACA Programme²⁰:

¹⁹ ICAO also approves Sustainability Certification Schemes that certify Sustainable Aviation Fuels in the context of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). More details can be found at <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-Eligible-Fuels.aspx> and <https://www.icao.int/environmental-protection/pages/SAF.aspx>

²⁰ List derived from Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast) 2009/28/EC. <https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L2001>

- Algae if cultivated on land in ponds or photobioreactors;
- Biomass fraction of mixed municipal waste (not separated household waste);
- Household biowaste;
- Biowaste fraction of industrial waste not fit for use in the feed or food chain;
- Straw;
- Animal manure and sewage sludge;
- Palm oil mill effluent and empty palm fruit branches;
- Tall oil pitch;
- Crude glycerine;
- Bagasse;
- Grape marcs and wine lees;
- Nut shells;
- Husks;
- Cobs cleaned of kernels of corn;
- Wastes and residues from forestry and forest-based industries, e.g., bark, branches, pre-commercial thinnings, leaves, needles, treetops, saw dust, cutter shavings, black liquor, brown liquor, fibre sludge, lignin and tall oil;
- Other non-food cellulosic material; and
- Other ligno-cellulosic material except saw logs and veneer logs.

① CO₂e emissions from renewable biomass sources that occur in all scopes shall not be included in the main carbon footprint, but shall be calculated following biogenic emissions guidance and reported separately within the public report. The CO₂e emissions from renewable biomass sources that occur in all scopes should be included in the main carbon footprint as they are not considered biogenic.

5.3.3 Sustainable Aviation Fuel (SAF)

Airports may decide to support the production and use of SAF by joining specific programmes and/or obtaining certificates to compensate for the emissions associated with their Scope 3 business travel by air (Scope 3, Category 6). In other words, airports may seek to “power” a share of their Scope 3 business flights by supporting the sourcing and consumption of SAF (even though the fuel consumption will happen in other locations across the world); airports adopting this approach would hence take greater action and ownership over their global carbon reductions.

In order for airports to use this form of compensation, the airport shall provide evidence that this option is:

1. calculated based on the latest scientific evidence;
2. verified by an independent third party auditor;

3. shown in a report and/or certificate;
4. used exclusively by the specific airport (i.e., no one else can claim the reduction);
5. real and measurable;
6. additional;
7. permanent; and
8. creating no harm.

5.4 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 Box 3. Alternatively, they can provide this information as part of other reports/documents.

Box 3 - Recommended Contents of the Carbon Footprint Report

- Purpose/objectives of the report and intended use/users as well as the reporting period.
- General information about the airport (e.g., brief historical information, ownership structure, location, employees, passengers/aircraft movements/cargo over the years, general map, etc.).
- Information about organizational 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.
- Description of the airport's carbon management policies, strategies, or programmes, including participation in *Airport Carbon Accreditation* (e.g., level, history, targets) or other initiatives.
- Information about past CO₂e (and where relevant other) emissions (e.g., reference year, quantities, historical information, sources and activities, comparisons).
- Carbon footprint calculation methodology including:
 - Procedures for the collection, documentation, and processing of emissions data.
 - Details on the role of airport departments regarding the carbon footprint process.
 - Emissions target setting and selection of baseline year (if relevant).
 - Data sources (e.g, invoices, delivery notes, weigh-bridge tickets, meter readings).
 - Data management (e.g., software, responsible department, data storage).
 - Emission factors, formulas, etc. and their justification.
 - Expected materiality and measurement accuracy (e.g., assumptions, explanations, calibration).
 - Potential exclusion of specific emission sources.
 - Adjustments for new assets or asset divestment.
 - Quality control procedures (audits, comparisons, recalculations).
 - Contact persons responsible for the carbon footprint and the report.
- Data used for calculating the carbon footprint including:
 - Energy consumption data.
 - Fuel consumption data.
 - Production data (e.g., tonnes of waste, kWh of electricity produced).
 - Raw material consumption data.
 - Passenger and employee surveys.
 - LTO cycle information
 - Flight information (e.g., aircraft type, flight distance).
 - Other data (e.g., private vehicles, public transport, surface access, travel, de-icing, APUs).
- Data presentation/analysis (e.g., graphs, tables, comparisons, progress towards target, trends, uncertainties) by Scope (1, 2, 3) and emissions source.
- Documented procedures for identifying sources and quantities of emissions.
- Samples of data sources (e.g., Invoices, delivery notes).
- Assurance processes to which the airport or its operations are subjected (e.g., internal audit, external reviews, and certifications).
- References

① Data sources shall be available for review by the verifiers. Verifiers may request additional information to the ones listed above.

6 Setting and Achieving Emissions Reduction Targets

6.1 Introduction

A summary of the requirements for setting and achieving emissions reduction targets is presented in Figure 7; for airports at Level 2, 3 and 3+ as well as airports at Level 4 and 4+, and Level 5. Further details of these requirements are presented in the subsequent sections.

Figure 7 - Summary of Requirements for Setting and Achieving Emissions Reduction Targets

	Accreditation Level					L5
	L2	L3	L3+	L4	L4+	
Target type	Absolute or intensity target using either passenger numbers, traffic units or kg of cargo			Absolute targets only		
Target scope	Scope 1 and 2 emissions			Scope 1 and 2 emissions (mandatory)	Scope 3 emissions (voluntary) including either LTO or one or more sources representing >10% of total Scope 1, 2 and 3 emissions (excluding LTO and cruise) and over which the airport exercises significant influence	<p>≥90% absolute CO₂e reduction targets for Scope 1 and 2 achieved.</p> <p>Scope 3 emissions in all relevant categories. Commit to Net Zero Scope 3 by 2050, or sooner, aligned to ISO Net Zero definition and/or sector Net Zero frameworks or commitments, where applicable.</p>
Target amount	No specific reduction amount is required.			Target reductions shall be in line with the IPCC 1.5°C or 2°C pathway (wherever possible) but can also be more ambitious.		<p>≥90% absolute CO₂e reduction in Scope 1 and 2 achieved and maintained.</p> <p>Net Zero Scope 3 by 2050, ISO Net Zero Guidelines, and/or aligned to Sector frameworks or commitments where applicable</p>
Baseline year	Baseline shall be chosen by the airport.			Airports should use the baseline year of 2010, where possible.		<p>Ideally a baseline year of 2010 at the earliest for Scope 1 and 2.</p> <p>Ideally, Scope 3 baseline should be the same baseline year as Scope 1 and 2, but if data is not available, Scope 3 data should be the most recent year, with the fullest data available.</p>
Target date	<p>No specific target date is required.</p> <p>Targets shall not be year-on-year, but further reaching into the future, however no specific length is required.</p>			<p>Target dates may fall on the middle or the end of the decade (e.g., 2030 or 2035).</p> <p>Long term targets shall reach at least 10 years into the future but can be as far off as 2050.</p> <p>If the long term is greater than 15 years into the future, airports shall set interim milestone: generally, 10-</p>	<p>≥90% absolute CO₂e reduction Scope 1 and 2 achieved at Level 5 application submission date and maintain it annually.</p> <p>Scope 3 Net Zero by 2050, or sooner.</p>	

		15 years into the future.	
Emissions trajectory	No emissions trajectory required	Airports must define the emissions trajectory from their current application year to their long-term target (via any interim milestone).	Airports must model an emissions trajectory for how $\geq 90\%$ absolute CO ₂ e reduction in Scope 1 and 2 will be maintained and how Net Zero in Scope 3 will be reached by 2050, or sooner.
Achieving targets	Airports must be able to show emissions reductions against the three-year rolling average for the specific target type they have selected (e.g., absolute or intensity).	Airports shall meet the long-term targets and interim milestone set, without any deviation. Achievement is assessed through the submission of the airport's carbon footprint for the milestone/target year.	Airports shall achieve $\geq 90\%$ absolute CO ₂ e reduction in Scope 1 and 2 and maintain that annually. Only 1 deviation year per renewal cycle allowed and any emissions over the threshold will require offset removals to be purchased. For Scope 3, airport shall meet the long-term targets and interim milestone. Achievements will be assessed annually by the airports and every 2nd renewal cycle by the ACA Administrator.
Demonstrating progress	Airports do not have to show progress against a trajectory.	Emissions will be compared to the trajectory every other renewal cycle (6 years). Emissions in that year can deviate from the trajectory by up to 15%.	Achieving and maintaining $\geq 90\%$ absolute CO ₂ e reduction in Scope 1 and 2 is assessed through the submission of verified annual carbon footprints. Progress against Scope 3 interim targets /milestones are to be tracked by airports annually via annual carbon footprint calculations. Airport's Net Zero roadmap needs to be updated every 2nd renewal cycle (every 6 years) and submitted during renewal process to demonstrate progress toward the long-term target and milestones.

6.2 Level 2, 3 and 3+

Airports at Level 2, 3 or 3+ shall set a challenging but realistic target for emissions reduction in absolute terms or in terms of emissions intensity. In order to attain or remain at that level, airports shall demonstrate annual improvement in Scope 1 and 2 emissions against a three-year rolling average. Ultimately, airports shall 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.

6.2.1 Selecting Absolute vs Intensity Targets

Airports shall decide between an absolute and an intensity target:²¹

Absolute target: A target defined by reduction in absolute emissions over time (e.g., reduce CO₂e emissions by 25% below 2015 levels by 2020 or reduce CO₂e 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 shall be expressed either as tonnes of CO₂e per passenger or as tonnes of CO₂e per Traffic Unit (TU). A TU is defined as 1 passenger movement or 100 kg cargo arriving or departing. For example, an airport may decide to reduce CO₂e emissions per passenger by 15% below 2015 levels by 2020; reduce CO₂e emissions by 0.20 kg/passenger below 2015 levels by 2020; or reduce CO₂e emissions per TU by 10% below 2015 levels by 2020, etc.

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 baseline year to be used for the target as well as an explanation of the selection of the baseline year.

6.2.2 Achieving Reductions and the Three-Year Rolling Average

An airport shall demonstrate annual 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) shall 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 shall verify any historical carbon footprints they are using for comparison against Year 0.

²¹ For a comparison between absolute and intensity targets, airports can review p. 76 of the GHG Protocol.

① All airports can use either the location-based or market-based method to demonstrate emissions reductions.

6.2.3 Adjusting the Three-Year Rolling Average for Investment or Divestment

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

① When an airport is replacing an asset without a significant change to its operational boundary (e.g., an old heating system with a new one), this is not defined as an investment or divestment for the purposes of this Application Manual.

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

Investment: In the case of an airport investing in new assets, there will be a period of time where there is not sufficient data to provide a like-for-like comparison against their historical carbon footprints. To balance between the programme's wish to see the impact of the new asset as early as possible and this lack of historical data, until a new asset has been in operation for two full years, the emissions of the new asset shall be reported separately, not as part of the airport's main carbon footprint. Consequently, to identify reductions, only the emissions from the pre-existing asset will be compared to the airport's historical emissions. This will ensure a like-for-like comparison. Once the new asset has been in operation for more than two full years, its emissions data shall be included in the comparison using one of the two approaches set out below.

Method A – using one single rolling average

After two full years of operation of the new asset, the airport will be comparing the emissions from all assets from Year 0 to Year -1. The year after, the emissions of Year 0 will be compared to those from Year -1 and Year -2, for all assets. This implies that after four years of full operation of the new asset, the airport will be able to use a three-year rolling average as reference to demonstrate emissions reductions.

Method B – using disaggregated rolling averages

After two full years of operation of the new asset, the average historical emissions of the new asset shall be calculated separately from the historical emissions of the pre-existing

assets. For the new asset, emissions from Year -1 will form a separate average, whereas for the pre-existing assets, emissions from Year -1, Year -2, and Year -3, i.e., the full three-year-rolling average, will be used.

Then the airport shall sum up the rolling averages for both the new asset and the pre-existing assets and demonstrate reductions against this sum. Emissions from the new assets will continue to form a separate rolling average until three years of historical data is available.

If the airport invested in more than one asset over the same time period, the rolling averages shall be calculated separately from both the rest of the airport and the other new assets.

With this method, the airport can use a three-year-rolling average as reference to demonstrate emissions reductions as soon as a new asset has been in operation for two full years. Therefore, this method is particularly relevant, but not exclusively so, to airports that are experiencing continued expansion.

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 shall report T1 emissions versus the three-year rolling average for T1 only (2013, 2014 and 2015). For 2017 it shall 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 its footprint in 2018, the airport shall include the emissions associated with T1 and T2 as two full years of comparable data is available. Depending on the approach taken to adjust for investment in new assets, the airport shall:

When using Method A:

- For 2018 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 shall 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).

When using Method B:

- For 2018 compare the performance of T1 and T2 versus the sum of the three-year-rolling average of T1 emissions in 2017, 2016 and 2015 and T2 emissions in 2017.
- For 2019 the airport shall compare the performance of T1 and T2 versus the sum of the three-year-rolling average of T1 emissions in 2018, 2017 and 2016, and the rolling average of T2 emissions in 2018 and 2017.
- From 2020 the airport will be able to compare its performance of T1 and T2 versus the full three-year-rolling average for both assets (2017, 2018, 2019). There is no need to separate the calculations of the average historical emissions for both assets anymore.

Figure 8 presents the above information in tabular format.

Figure 8 - Example of Emission (CO₂e) Calculations from New Assets

IN YEAR	2016	2017	2018	2019	2020
The airport shall measure emissions from.....	T1 + partial T2 since opening	T1 + T2			
The airport shall compare the emissions of	T1	T1	T1 +T2		
..... with the average emissions of	T1 form 2013-15	T1 from 2014-16	T1 + T2 in 2017	T1 x T2 in 2017-18	T1 +T2 in 2017-19 (Standard calculations method)
			The sum of T1 three year rolling average (2015-17) + T2 in 2017	The sum of T1 three year rolling average (2016-18) + T2 in 2017-18	

Key	
	New asset opening mid-year
	Method A
	Method B

6.3 Level 4 and 4+

6.3.1 Setting Long Term Targets at Level 4 And 4+

Airports at Level 4 and 4+ shall meet different requirements in relation to setting and achieving emissions reduction targets compared to those for airports at Level 2, 3 and 3+.

Target type

For Level 4 and 4+, emissions reduction targets shall only refer to absolute reductions, regardless of any further growth in air traffic or airport infrastructure. Airports may also set targets for emissions intensity for internal carbon management purposes, but these are not relevant for Level 4 and 4+ certification.

If an airport has already set an absolute target at Level 2, 3 or 3+ which meets the other criteria set out below for Level 4, it may be eligible to be accredited at Level 4 and 4+. Otherwise, the airport shall set a new target which supersedes any previous target for the purpose of accreditation.

Target scope

Level 4 and 4+ airports shall include all Scope 1 and 2 emissions in their target as a minimum (i.e., an airport operator target scope).

If an airport chooses to do so, it may also incorporate one or more sources of Scope 3 emissions in its target and thus partially or entirely cover the airport as a system (i.e., a third-party inclusive target scope). In this case, airports shall ensure that their Scope 1 and 2 emissions at least remain stable in the future if further reductions are not possible. Airports are encouraged to regularly assess whether additional reductions on Scope 1 and 2 can be achieved.

The option of setting a third-party inclusive emission reduction target allows airports to identify and pursue the most effective emissions reduction opportunities, recognizing that they may relate to the airport operator's Scope 3 sources. This decision is at the discretion of the airport operator along with the selection of which Scope 3 emissions sources are included in such a target. However, two further requirements shall be met for any third-party inclusive target:

- The total Scope 3 emissions included in the target shall be significant - in this case defined as LTO emissions or any other sources being greater than 10% of the total (Scope 1, 2 and 3, but excluding aircraft LTO and cruise) emissions.
- The airport operator shall demonstrate that it exercises significant influence over those Scope 3 emissions sources which are included. This shall be demonstrated by means of the airport's Carbon Management Plan which shall state which Scope 3 sources are included in the target, the third-party owner of those emissions and how the airport operator exercises influence over those emissions.

In the context of aircraft operations at an airport, emissions sources which would typically meet the above requirement include operations at the gate, during taxi and in some cases LTO. Many other Scope 3 sources could be included with suitable justification on a case-by-case basis.

① In defining whether to include Scope 3 emissions in the target, and if so which emissions sources to include, the airport operator should consider the financial, operational, and business requirements and constraints, availability of emissions reduction technologies, monitoring and reporting requirements, the views of stakeholders, etc. Generally speaking, limiting the target to Scope 1 and 2 does not advance airport-wide reductions.

Target amount and date

In order to achieve Level 4, airports are required to adopt targets in line with the Paris Agreement, which sets the objective of “holding the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C (...).”

Against this background and given the conclusions of the IPCC Report from October 2018, it is strongly recommended that airports follow the 1.5°C scenario to define their absolute emissions reduction target. However, it is understood that airports face different operational and regulatory challenges and regional disparities that might either encourage or prevent them from being able to set very ambitious targets (e.g., access to greener energy). Flexibility to set targets that are achievable and contribute to the overall reductions in the airport sector must be allowed for. Therefore, aiming to recognise airports’ alignment with the Paris Agreement, the minimum standard required to achieve Level 4 is compliance with the 2°C scenario.

Considering the above requirements, Figure 9 sets out a target amount for each possible long-term target date (or interim milestone date) which is considered to provide acceptable alignment with the IPCC 1.5°C pathway or 2°C pathway. An acceptable range is provided for each target date/amount. However, there is no limit in terms of the maximum emissions reduction target amount which can be applied for a given airport and a given target date.

Figure 9 - Target Amounts for Each Possible Long-Term Target Date when Using a 2010 Baseline Year

TARGET YEAR	TARGET AMOUNT VS 2010 BASELINE YEAR (2°C pathway)	TARGET AMOUNT VS 2010 BASELINE YEAR (1.5°C pathway)
2030	-25% (range of -10% to -30%)	-45% (range of -40% to -60%)
2035	-34% (range of -21% to -39%)	-59% (range of -55% to -70%)
2040	-44% (range of -33% to -48%)	-73% (range of -70% to -80%)
2045	-53% (range of -44% to -56%)	-86% (range of -85% to -90%)
2050	-63% (range of -55% to -65%)	Net Zero

Box 4 - Defining an Emissions Reduction Target

There are several elements that airports need to consider in order to define an ambitious but realistic target. Airports should first consider the future emissions scenario that they would expect to occur without any significant reduction interventions. This could include considering the following points amongst others:

- Historic evolution of emissions at the airport
- Expected future passenger numbers.
- Projected air traffic movement growth
- Existence of planned developments for new terminals / runways
- Developments to public transport providing passenger access.
- Decarbonisation of grid electricity generation
- Increase in fuel efficiency of vehicles.
- Changing fuel mix of vehicles

For some airports, the future emissions scenario will suggest a significant reduction in emissions while for others it may suggest an increase. Following this exercise, airports may consider a long list of possible actions they could implement. Ideally, airports should complete a cost-effectiveness exercise to compare possible actions leading to an optimal strategy for emissions reductions. Airports should consider the opportunities presented by the need to replace existing equipment/vehicles at the end of their operational life (e.g., replacing ageing boilers/chillers with efficient modern version of alternative low or zero Carbon technologies like heat pumps).

By completing this exercise, an airport should feel confident that its emission reduction target is realistic on the basis of implementing all or some of the actions identified. In other cases, the reduction target may appear to require stretching beyond what can currently be considered realistic. However, an ambitious long-term target will drive innovation in carbon reductions and further actions may become apparent as time passes.

In line with the IPCC report (2023) which relies on 2010 as a baseline, it is recommended that airports also use 2010 as a baseline. However, the airport can select a different baseline year provided that it justifies its choice. For instance, some airports might not be able to use 2010 as a baseline year because of lack of high-quality emissions data. In the case of an airport opening after 2010, the first full operating year could be chosen. For airports that do not choose the 2010 baseline year, they shall still choose targets that are in line with the percentage bands stated in Figure 9.

Following its selection, the baseline year should remain unchanged, unless some regulatory or other important reason emerges. The airport will have to justify any subsequent change of the baseline year.

A long-term target shall be set which is at least 10 years into the future from the date of application for Level 4 or 4+. The latest acceptable target date is 2050. The target date should preferably fall on the middle or end of the decade (e.g., an airport applying for Level 4 in 2020 could set a long-term target for the year 2030, 2035, 2040, 2045 or 2050).

① Airports can have a long-term target that is less than ten years into the future if they are aiming to reach net zero emissions.

Airports setting a long-term target greater than 15 years into the future shall also set at least one interim milestone which also aligns with the relevant IPCC pathway, and it should ideally also fall on the middle or end of the decade. Any interim milestone shall typically be 10 or 15 years after the application year or before the long-term target year (e.g., an airport applying for Level 4 in 2020 and with a long-term target for the year 2050, could set two interim milestones for the years 2030 and 2040 or it could set just one for the year 2035).

① Existing targets set by airports (e.g., targets based on government requirements or Corporate Social Responsibility reporting) will only be accepted for Level 4/4+ if they meet all of the requirements set out here. A target set and approved by the Science Based Target initiative (SBTi) will automatically be accepted for Level 4/4+ accreditation as aligned to the IPCC 1.5°C pathway or 2°C pathway if it is set at least 10 years into the future. However, if an SBTi target is set less than 10 years into the future, a second target shall also be set for the purposes of Level 4/4+ accreditation (10-15 years into the future to comply with Level 4/4+ requirements), and this target does not need to be approved by the SBTi.

Changing the target or interim milestone

In the years preceding each interim milestone or the long-term target, a Level 4 or 4+ airport may on one occasion:

- Change the Scope 3 sources included in the target;
- Change from a Scope 1 and 2 to a third-party inclusive target scope and vice versa;
- Change the target amount or date.

The change should take place upon a renewal and shall be verified. The new target shall meet all the other requirements stated i.e., the new target is still aligned to the IPCC 1.5°C pathway or 2°C pathway and the new target must be at least ten years into the future from the year the original target was set.

An airport can also change an interim milestone on one occasion in the run-up to the year when it is due. The new milestone shall meet all the other requirements set out for the definition of milestones.

① For example, if an airport has a target for 2050 and an interim milestone for 2035, it can redefine the interim milestone once, and the target once.

① The above restriction on the frequency of a change does not apply to cases where the change in a target/milestone is aimed at making it more ambitious. This means that an airport can change its target to be more ambitious on multiple occasions. Such a change shall still be verified and must be made upon the airport's renewal.

6.3.2 Setting An Emissions Reduction Trajectory

In addition to defining its long-term target and corresponding target year– as well as any interim milestone(s) – a Level 4 or 4+ airport shall determine the emissions trajectory it expects to follow to achieve the target. It shall include its expected carbon emissions trajectory in its Carbon Management Plan, and this shall correspond with the actions and expected emissions reductions contained therein.

The emissions trajectory can include a projected increase at any point as long as it eventually reaches the required emission reduction target in the corresponding target year. The airport will have to explain why any increase is expected.

① Refer to Box 4 (Defining an emissions reduction target) for further guidance on how an airport might consider a future emissions scenario (without significant intervention) and additional actions that should be taken to drive emissions downwards.

6.3.3 Achieving Targets at Level 4 And 4+ and Demonstrating Progress

Airports shall demonstrate progress against their emissions trajectory by means of their carbon footprint and Carbon Management Plan. In particular:

- Airports must demonstrate the achievement of the long-term target or interim milestones once the target date has been reached. This will be verified at the renewal following the target/milestone due date. It will not be possible for a Level 4 or 4+ airport to renew their application if they have not achieved a past target/milestone.
- Additionally, every six years, (every other renewal cycle), actual airport emissions will be compared to the trajectory and the airport is required to be on track. A maximum deviation of 15% above the forecast emissions trajectory will be accepted in that renewal year.
- An airport shall present the expected emissions according to its trajectory and the actual emissions for the corresponding year. It shall also detail which initiatives have been implemented, and the actual emissions reductions that have been achieved as a result.

An airport may adjust its emissions trajectory at each renewal, provided its Carbon Management Plan still demonstrates it is on track to meet its long-term target and, if applicable, interim milestone(s).

① Note that making changes to the emission trajectory is separate to making changes to the long-term target (or interim milestone) itself. The option and requirements for changes to targets and milestones are set out in Section 6.3.1.

① Airports at Level 4 and 4+ can use either the location-based or market-based method when it comes to setting and demonstrating achievement of their emission reductions targets. Airports shall report using the method based on which the target was set. If an airport wants to switch from the location-based method to the market-based method (or vice versa), the airport shall change the target amount accordingly and justify the reason for the changes.

6.4 Level 5

6.4.1 Setting Net Zero Targets at Level 5

Airports at Level 5 need to meet different requirements in relation to achieving and setting Net Zero emissions reduction targets (compared to the other Levels).

Target type

For Level 5, emissions reduction targets refer to absolute reductions, regardless of any further growth in air traffic or airport infrastructure. Airports may also set targets for emissions intensity for internal carbon management purposes, but these are not relevant to Level 5 accreditation.

If an airport has already set an absolute target for Level 4 or 4+ which meets the other criteria set out below for Level 5, it may be eligible to be accredited at Level 5. Otherwise, the airport shall set a new target for Level 5 which supersedes any previous target for the purpose of accreditation.

Target scope

Level 5 airports shall demonstrate that they have achieved $\geq 90\%$ absolute CO₂e emissions reductions in Scope 1 and 2 and are committed to Net Zero in Scope 3 by 2050, or sooner, aligned to ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable.

As part of this overall target scope, Level 5, is awarded once airports can demonstrate that they have reduced their Scope 1 and 2 GHG emissions by $\geq 90 + \%$ and any remaining residual emissions in Scope 1 and 2 have been addressed using approved/certified offset removals.

6.4.2 Achieving Targets at Level 5 and Demonstrating Maintenance of Targets

Airports shall evidence that they have already reached $\geq 90 + \%$ GHG absolute reduction in Scope 1 and 2 and demonstrate that they are maintaining that status over time. Evidence of achievement and maintenance of $\geq 90 + \%$ GHG absolute reduction in Scope 1 and 2, will be demonstrated through an annual verified carbon footprint and an updated Carbon Management Plan (CMP).

To maintain Level 5 accreditation, airports must demonstrate that they are maintaining $\geq 90 + \%$ GHG absolute reduction in Scope 1 and 2, with the residual emissions addressed by offset removals, and working towards Net Zero in Scope 3 by 2050.

In addition to defining its long-term target and interim milestone(s), at Level 5, an airport shall determine (model) the emissions trajectory it expects to follow to achieve the Net Zero target by 2050. It shall include its expected carbon emissions trajectory model in its Carbon Management Plan which should correspond with the actions and expected emissions reductions outlined in the Airport's Net Zero roadmap (included within the Carbon Management Plan).

The emissions trajectory for Scope 3 can include a projected increase at any point if it eventually reaches the required emission reduction target in the corresponding target year. The airport will have to explain why any increase is expected.

① Refer to Box 4 (Defining an emissions reduction target) for further guidance on how an airport might consider a future emissions scenario (without significant intervention) and additional actions that should be taken to drive emissions downwards.

7 Carbon Management Plan (CMP)

At Level 2 and above, an airport shall 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. As a minimum, the Plan shall cover Scope 1 and 2 emissions as they have been defined in the carbon footprint. After its initial development, the Plan shall be updated at least every three years.

Airports shall 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 CMP

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

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

For Levels 4 and 4+, it should in addition contain the long-term target set by the airport, as well as the associated emissions trajectory, as per requirements set out in Section 6. In addition, for Level 5, it should cover all relevant Scope 3 emission categories within the airport's full carbon footprint, as well as the associated emissions trajectories model and a Net Zero roadmap. The following sections provide recommendations on the contents of each part and Level.

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 should incorporate the following features:

- Allocation of human and financial resources for the development and implementation of management plans.
- Appointment of an Airport Environment 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 GHG 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:²²

- 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

²² ACI World Guidance Manual: Airport Greenhouse Gas Emissions Management (<https://store.aci.aero/product/guidance-manual-airport-greenhouse-gas-emissions-management>).

Additional resources include: “Guidance on Airport’s Contribution to Net Zero Aviation,” ACI Europe (2022); “Developing an Airport Net Zero Carbon Roadmap,” ACI Europe (June 2023); “Feasibility of Zero Emissions Airport Operations in England by 2040,” Mott Macdonald & UK Department of Transport (April 2022); ATAG - Aviation Climate Solutions (2016) (<http://www.atag.org>); ACRP - Guidebook for Developing a Zero or Low-Emissions Roadmap at Airports (<https://www.trb.org/Main/Blurbs/180127.aspx>); *Airport Carbon Accreditation Annual Reports*.

incentives such as priority queuing, parking cost reduction and priority parking areas.

7.1.3 Reporting Emissions Reduction Performance

To identify the actual carbon performance of the airports, airports must provide estimated carbon reductions resulting from the most significant actions in their Carbon Management Plan.

7.1.4 Implementation at Levels 2, 3 and 3+

An implementation strategy is useful in order to describe the means by which carbon management initiatives will be carried out. It should include topics such as objective, project design, management and roles, risk management, timelines, monitoring, evaluation, checklists, reporting, etc²³.

7.1.5 Implementation Strategy at Levels 4 and 4+

The implementation section of the Carbon Management Plan for Levels 4 and 4+ shall include the elements required for the implementation strategy at Levels 1, 2, 3 and 3+ but in a more extensive manner. This means that based on the defined long-term target, interim milestones, and emissions trajectory, it shall include the projected emissions reduction from each carbon management initiative, the resulting contribution to the airport's emissions trajectory and associated timelines.

7.1.6 Implementation Strategy at Level 5

At Level 5, a Carbon Management Plan is required, which includes at a minimum the following items:

A **Net Zero Commitment Statement** adjusted only for the airports name and baseline year (Box 5).

²³ Resources that may support and 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," and the Project Management Institute at www.pmi.org

Box 5 - Level 5 Net Zero Commitment Statement

XX Airport has achieved $\geq 90 +$ % absolute GHG reduction in Scope 1 and 2, from a 20xx baseline with residual emissions addressed with offset removals. XX Airport commits to maintaining $\geq 90 +$ % GHG absolute reduction in Scope 1 and 2 and achieving Net Zero in Scope 3 by 2050, or sooner, from a 20xx baseline, aligned with the ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable, with interim targets/milestones outlined in a Net Zero roadmap. Where no Net Zero sector commitments/framework exist, the ISO target applies.

The implementation strategy of this Net Zero commitment for Level 5 will require a Carbon Management Plan that presents:

- The results of the baseline emissions footprint with Scope 1, 2 and 3 GHG emissions. Ideally the same baseline year for all scopes is best, but if the data is not available for all Scopes in the same baseline year, they may differ.
- The current emissions should also be reported to show the maintenance of $\geq 90 +$ % Scope 1 and 2 and the progress towards Net Zero in Scope 3 by 2050.
- The baseline emissions, the current years and any projected emissions scenarios should be modelled and presented as a target trajectory model for Scope 1, 2 and 3 emissions pathways.
- Plans to improve the GHG data quality and to embed GHG management process within the airport operations should be also outlined in the CMP.
- GHG emissions reduction actions should be outlined and included in the trajectory model, where possible.
- A Stakeholder Partnership Plan outlined the work that will be undertaken with Stakeholders within the Scope 3 value chain to reduce emissions should also be included.
- Net Zero roadmap summarising the above results, interim targets/ milestones and GHG emissions reduction actions, should be developed into a one-page Net Zero roadmap diagram. This Net Zero roadmap should be updated at least every two renewal periods/every 6 years.

7.1.7 Communication, Awareness and 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 should 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 or Partnership Plan.

7.1.8 Self-Assessment and 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 required²⁴.

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.

²⁴ 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 Management

8.1 Introduction

Net Zero in Scope 3 emissions is a long-term commitment that requires dedication, collaboration, and ongoing effort. It's essential to involve all relevant stakeholders and build a sense of shared responsibility for sustainability at the airport. Stakeholders represent an important component of airport efforts to manage greenhouse gas emissions. Stakeholders include operational and service companies, such as 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.

Airports at Level 3 and 3+ shall formulate a Stakeholder Engagement Plan, while airports at Level 4 and 4+ shall develop a more demanding Stakeholder Partnership Plan. At Level 5 the Stakeholder Partnership Plan needs to be strengthened and refined so that significantly contributing emissions are clearly evidenced and reduced by suppliers, within the Airports value chain. A summary of the respective requirements for stakeholder management is presented in Figure 10, while further details are presented in the subsequent sections.

Figure 10 – Stakeholder Management

	Level 3 (Optimization)	Level 3 (Neutrality)	Level 4 (Transformation)	Level 4+ (Transition)	Level 5
Title	Stakeholder Engagement Plan		Stakeholder Partnership Plan		
Purpose	On-going dialogue, sharing of best practices, and promoting cooperation with stakeholders with the aim of reducing emissions from major stakeholder operations.		Actively driving third parties at the airport towards delivering emissions reductions themselves either through their own reduction plans or through measures initiated by the airport operator.		
Emission reduction objectives for stakeholders	No		Yes (absolute or relative)		Yes (absolute)
Reporting	Yes, for initial accreditation and every renewal.				
Minimum Information	Description of stakeholders, allocation of responsibilities for engaging with key stakeholders, evidence of engagement and outcomes, implementation plan		Inclusion of all stakeholders that are responsible for a significant contribution to the Scope 3 footprint, setting of emissions reduction objectives for stakeholders, carbon reduction plans/measures directly taken by the stakeholders with airport contribution or defined by the airport operator.		Strengthen requirements for engagement with aircraft operators and other stakeholders to reduce aircraft emissions
Revisions	After its initial development, the Plan shall be revised at least every three years. The revised Plan shall include updated information about stakeholders, joint initiatives, achievement of emission reductions, updated objective setting, training and awareness, etc.				
Verification	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.				

8.2 Stakeholder Engagement Plan for Airports at Level 3 and 3+

At Level 3 and 3+, an airport shall 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 shall 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 shall be revised at least every three years. The revised Plan shall include updated information about stakeholders, joint initiatives, achievement of targets, training, and awareness, etc. During the interim years the airport shall 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 shall 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 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).
- An implementation plan of the intended approach to engaging with stakeholders including proposed actions and timings.

The implementation plan should consider 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 "Handbook for Stakeholder Engagement"²⁵.

① The programme accepts evidence of complying with EUROCONTROL's Collaborative Environmental Management (CEM) specifications as adequate proof of a Stakeholder Engagement Plan²⁶. Airports operating in states that belong to the European Civil Aviation Conference (ECAC) may also use a dedicated web-tool proposed by EUROCONTROL²⁷.

8.3 Stakeholder Partnership Plan for Airports at Level 4 and 4+

At Level 4 and above, an airport shall demonstrate that it has formulated and is effectively implementing a Stakeholder Partnership Plan. The Stakeholder Partnership Plan differs from the Stakeholder Engagement Plan as it shall demonstrate that the airport actively drives third parties at the airport towards delivering emissions reductions themselves. All airports at Level 4 and 4+ shall have a Stakeholder Partnership Plan, regardless of whether they have chosen a third-party inclusive reduction target or not. The Stakeholder Partnership Plan shall include the following:

- All stakeholders that are responsible for a significant contribution to the Scope 3 footprint. It is up to the airport to define what a "significant contribution" means in its specific context. The airport can use as a reference the 10% threshold defined in 6.3.1

²⁵ For more information see: <https://www.unep.org/resources/publication/stakeholder-engagement-handbook>

²⁶ The CEM specification is available at: <https://www.eurocontrol.int/initiative/collaborative-environmental-management>

²⁷ <https://www.eurocontrol.int/portal/collaborative-environment-management-online>

but can also choose to incorporate stakeholders with a smaller contribution.

- The setting of emissions reduction objectives for a specific stakeholder or a group of stakeholders. These objectives can be absolute or relative and can either be set by the airport operator or by the stakeholder. If the stakeholder has set the objective, the airport will have to demonstrate significant involvement/contribution to the objective setting.
- Carbon reduction plans/measures directly taken by the stakeholders in partnership with the airport and leading to emissions reductions. Again, the airport operator shall demonstrate their involvement in these measures and plans. If the stakeholders had implemented these plans unilaterally, the airport operator will not be able to include these in the Stakeholder Partnership Plan.
- Reduction measures defined by the airport operator on stakeholder activities e.g., APU restrictions, emissions limits.

It is not mandatory to define and prepare 1) an emissions reduction objective(s), 2) a carbon reduction plan/measures, and / or 3) individual restrictions, for each individual stakeholder. Rather, each stakeholder group needs to include a response to each of these three requirements (i.e., at a group level), within its Stakeholder Partnership Plan.

Similarly, to the Stakeholder Engagement Plan, after its initial development, the Stakeholder Partnership Plan shall be revised and verified at least every three years. The revised Plan shall report on the emissions reductions achieved from stakeholder sources as a result of the cooperation between the airport and the stakeholder.

The programme does not require the airport to establish additional management committees and meetings specifically for stakeholder partnership. 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.

8.4 Stakeholder Partnership Plan for Airports at Level 5

Level 5 requires airports to take concrete actions to facilitate aircraft emissions' reductions beyond what is foreseen at Level 4/4+. A list of possible partnership areas should be defined (for example, support to Sustainable Aviation Fuel (SAF) provision, development of infrastructure to enable hydrogen-powered aircraft operations, etc.), while airports should maintain the flexibility to propose new areas themselves or develop new initiatives.

It should also be considered how far the criterion of exceeding legal requirements should be used to assess the actions taken, as this would allow for a context-based assessment, acknowledging the different regulatory frameworks airports are facing in various regions.

At Level 5, an airport shall demonstrate that it has formulated and is effectively implementing a Stakeholder Partnership Plan. The Stakeholder Partnership Plan shall demonstrate that the airport actively drives third parties at the airport towards delivering emissions reductions themselves in line with sector Net Zero frameworks and commitments. The Level 5 Stakeholder Partnership Plan shall include the following:

- All stakeholders that are responsible for contributing to the Scope 3 footprint, with a priority on at least the top 5 emitting categories.
- The setting of emissions reduction objectives for a specific stakeholder or a group of stakeholders. These objectives should be absolute and can either be set by the airport operator or by the stakeholder. If the stakeholder has set the objective, the airport will have to demonstrate significant involvement/contribution to the achievement of the objective.
- Carbon Management Plans/measures directly taken by the stakeholders that contribute to reducing the airports Scope 3 emissions can be included in the Stakeholder partnership plan.
- Reduction measures defined by the airport operator on stakeholder activities, for example, APU restrictions, emissions limits.

The Stakeholder Partnership Plan shall be revised and verified at least every three years. The revised Plan shall report on the emissions reductions achieved from stakeholder sources as a result of carbon reduction actions/ the cooperation between the airport and the stakeholder.

The programme does not require the airport to establish additional management committees and meetings specifically for stakeholder partnership. 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 and achieving Net Zero by 2050, or sooner.

9 Offsetting

In order to achieve Level 3+ (Neutrality) and Level 4+ (Transition), 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. At Level 5, a key requirement is to achieve Net Zero for Scope 1 and 2 emissions, with a minimum of 90% own reductions and applying credible offset removals for the residual emissions.

As Levels 3+, 4+, and 5 require actions outside the direct control of airports, the Offset Guidance Document has been developed to inform and guide airports about offset requirements, and recommendations. This document is available on the *Airport Carbon Accreditation* website²⁸.

① Airports may choose to register on-site projects that lead to carbon reductions as offset projects. However, if the airport generates offsets from such projects and sells them, it cannot claim the associated emissions reductions, i.e., these reductions cannot be accounted for in the airport's carbon footprint.

① Energy attribute certificates, including Guarantees of Origin (GOs) and Renewable Energy Certificates (RECs) are used as transferable certificates or credits indicating generation of a particular quantity of energy (e.g., electricity, district thermal energy) from renewable and low carbon fuel sources. Energy attribute certificates are technically not offsets. Whereas offsets account for a reduction of emissions achieved in each project, energy attribute certificates indicate the appropriate emissions factor for the electricity generated. Therefore, energy attribute certificates 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.

① Airports are encouraged to use energy attribute certificates to reduce their Scope 2 emissions before purchasing offset credits to offset their residual emissions. This directly supports the generation of low carbon / renewable energy and avoids potential risks associated with offsets.

²⁸ <https://www.airportcarbonaccreditation.org/>

10 Independent Third-Party Verification

10.1 Why Verify

Independent third-party verification is an essential requirement for all levels of *Airport Carbon Accreditation*. 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.

Additional information on verification requirements, as well as the process of becoming independent third-party verifier, is available in the Verifier Manual on www.airportcarbonaccreditation.org.

10.2 What to verify

10.2.1 Levels 1, 2, 3 and 3+

The verifier shall 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 baseline year,
- Comparison of annual emissions versus the 3-year rolling average,
- Carbon Management Plan,
- Stakeholder Engagement plan,
- Offsets (for Level 3+),
- Emissions reductions achieved for at least one Scope 3 emissions source (this is only in case of the three-year renewal cycle for Level 3/3+).

The verification of the carbon footprint shall be conducted in accordance with the requirements of ISO14064-3 and in line with the GHG Protocol.

For example, for Level 1 the verifier shall 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 shall attest that the carbon footprint of the baseline 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 baseline year is to

be verified only once, unless the airport decides to change it, in which case the new baseline year needs to be verified as well.

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

① Airports entering the programme directly at Level 2, 3 or 3+ shall provide verification regarding any historical carbon footprints they are using for comparison as part of the three-year rolling average.

10.2.2 Levels 4 and 4+

For Level 4 and 4+, the verifier shall attest that the following application information meets the programme requirements:

- Policy statement,
- Carbon footprint (including the wider scope at these levels) and baseline year,
- Absolute long-term target is in alignment with IPCC's 1.5°C or 2°C pathways,
- Carbon Management Plan, including emissions' trajectory and expected reductions from initiatives,
- Comparison of actual emissions versus the trajectory,
- Stakeholder Partnership Plan,
- Emissions reductions achieved for Scope 3 emissions addressed by the Stakeholder Partnership Plan,
- Offsets (for Level 4+).

The verification of the carbon footprint shall be conducted in accordance with the requirements of ISO14064-3 and in line with the GHG Protocol.

10.2.3 Level 5

For Level 5, the verifier shall attest that the following application information meets the programme requirements:

- Policy statement;
- Carbon footprint (including all scopes at level 5); $\geq 90\%$ absolute CO₂e emissions reductions for Scopes 1 and 2 CO₂e emissions has been achieved and is maintained, evidenced with a verified carbon footprint (including baseline year);
- Carbon Management Plan (CMP), includes $\geq 90\%$ absolute CO₂e emissions reductions for Scopes 1 and 2 Maintenance Plan and Net Zero roadmap;
- Comparison of actual emissions versus Net Zero in target trajectory model
- Stakeholder Partnership Plan (SPP) strengthened and refined; and

- Approved offset removals have been used for any residual emissions.
- Scope 3 has been quantified in line with GHG Protocol Scope 3 Guidance.
- Scope 3 target for Net Zero by 2050 has been set, in alignment with ISO Net Zero and/or Sector/Net Zero framework or sector commitments, where applicable.
- Net Zero roadmap includes Scope 3 interim targets/ milestones have been developed with progress reported and updated every 6 years.

① The verification of the carbon footprint shall be conducted in accordance with the requirements of ISO14064-3 and in line with the GHG Protocol.

10.2.4 Summary of What to Verify

Figure 11 presents the verification requirements at each level of accreditation.

Figure 11 – Main 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 baseline 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 Engagement Plan
Level 3 Optimisation 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 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 4 Transformation	Policy statement & carbon footprint, carbon footprint of baseline year, long-term absolute emissions reduction target (in line with IPCC 1.5°C or 2°C pathway), Carbon Management Plan, Stakeholder Partnership Plan with emissions objectives.
Level 4 Transformation Renewal	Level 4 requirements, demonstration that the airport has achieved any long-term target/interim milestone for a year which has passed, verified emissions reductions achieved from Stakeholder Partnership Plan. Every six years the airport must demonstrate that they are on track with their forecast trajectory to their target.
Level 4+ Transition	Level 4 requirements and offsets
Level 4+ Transition Renewal	Level 4 three-year renewal requirements and offsets.
Level 5	Level 5 requirements include Achieving $\geq 90\%$ carbon reduction in Scope 1 and 2, with residual emissions addressed by offset removals, commitment to Net Zero in Scope 3 by 2050, or sooner, aligning with ISO Net Zero and/or sector Net Zero frameworks or commitments, where applicable, carbon footprint of baseline year, Carbon Management Plan, Stakeholder Partnership Plan, etc.
Level 5 Renewal	Level 5 three-year renewal requirements with a verified carbon footprint of all scopes GHG emissions, any approved offset removals and reported maintenance of $\geq 90\%$ absolute carbon reduction at Scope 1 and 2 and progress against interim targets/ milestones for Scope 3, Carbon Management Plan. Stakeholder Partnership Plan, etc.

① Using professional judgement, verifiers shall confirm that all questions on ACA online have been completed with an appropriate level of detail before the application is submitted for Administrator review.

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.

Airports at Level 4 or 4+, will also be on a three-year renewal cycle so will be 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.

Airports at Level 5, will also be on a three-year renewal cycle. However, they are required to submit a verified application every year.

Verifiers will have to verify the achievement of any interim milestones or long-term targets upon the renewal following their due dates. Verifiers will only have to verify that an airport is aligned to their emissions reduction trajectory every six years, although verifiers should upon every renewal check whether airports are at risk of deviating from the trajectory and warn them accordingly.

If an airport upgrades from one level to another, it shall submit a verified application, regardless of whether or not the previous year's application was verified. Examples of verification timelines are presented in Figure 12.

Figure 12 - Examples of Verification Timelines

Airport	A	B	C	D	E
Year					
1	Apply at Level 1. Verification required.	Apply at Level 1. Verification required.	Renew with three-year renewal cycle at Level 3/3+. Verification required.	Apply at Level 4/4+. Verification required.	Apply at Level 5. Verification required.
2	Renew at Level 1. Submission of non-verified application.	Upgrade to Level 2. Verification required, as well as one-time verification of the baseline year.	No renewal required. Submission of non-verified carbon footprint.	No renewal required. Submission of non-verified carbon footprint.	No renewal required. Submission of verified carbon footprint
3	Renew at Level 1. Verification required.	Renew at Level 2. Submission of non-verified application.	No renewal required. Submission of non-verified carbon footprint.	No renewal required. Submission of non-verified carbon footprint.	No renewal required. Submission of verified carbon footprint.
4	Renew at Level 1. Submission of non-verified application.	Renew at Level 2. Verification required.	Renew Level 3/3+ Verification required.	Renew Level 4/4+. Verification required.	Renew Level 5. Verification required.

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. Airports may use verifiers that are located outside of their designated region.

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. Only verifiers that have completed specific additional training on Level 4 & 4+ and passed a separate exam will be allowed to carry out verifications of Level 4 and 4+ applications. The entry or renewal process at Level 5 requires a Level 5 ACA verifier. For the two years in between, airports can select any ACA approved verifier if preferred.

① The Administrator is responsible for overseeing the appointment and training of third-party verifiers. All prospective verifiers shall 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 same airport. Consultants shall not appoint a verifier on behalf of the airport. Third-party verification shall 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 by the airport.

10.5 Off-site Verification

Off-site verification refers to a verification of an application being undertaken without the verifier being physically present at the airport. Off-site verification still includes the review of all data, processes, and policies relevant for *Airport Carbon Accreditation*, and a discussion of these via teleconference with the verifier.

All verification shall be completed on-site unless prior approval by the Administrator has been granted. Any airport wishing to use off-site verification must make a request in writing to the Administrator prior to the verification process commencing. Approval for off-site verification will be granted on a case-by-case basis. Off-site verification may be allowed for all airports meeting at least one of the following conditions:

- The airport is completing a renewal application (except for three-yearly renewal which requires on-site verification every three years); or
- The airport is upgrading accreditation from Level 3 to Level 3+; or Level 4 to 4+; or
- There is a demonstrable lack of availability of verifiers in the region; or
- The airport is located in a very remote location (for example, a small island state); or
- The airport is part of a group of airports adopting the sampling approach (see Section 10.6); or
- For other justifiable reasons.

Airports which are allowed to proceed with off-site verification by the Administrator are still required to complete an on-site verification every 2nd (or alternate) verification. For example, if an airport has renewed its accreditation with an off-site verification, its next renewal will have to be carried out on-site.

10.6 Airport Group Sampling Approach to Onsite Verification

Airport groups (including Small Airport Group applications) may qualify to use a sampling approach to on-site verification for any application type (Entry, Upgrade, Renewal). The sampling approach means that only a selected set of individual airports in the group will be verified on-site. The other airports in the group will be verified off-site. To qualify, an airport group shall meet the following criteria:

- There is one overarching group carbon reduction policy,
- The *Airport Carbon Accreditation* application process is centrally coordinated,
- All sites are subject to centrally coordinated internal auditing processes,
- A minimum of 3 airports requiring verification are applying in the same year.

In order to use the sampling approach to on-site verification, the airport group must first make a written request to the Administrator including the suggested sample in that year. This sample should be representative and demonstrate how it relates to any years where the sampling approach has been used previously. The proposed sample should be developed under guidance from the verifier and submitted to the Administrator prior to verification commencing.

The sample must:

- Differ each year (i.e., the sample needs to include at least one airport site not covered in the previous year)
- Ensure that on-site verification accounts for at least 50% of the total Scope 1 and 2 emissions of all verified airports within the group in that year.

The sample shall be representative of the airport group and should consider:

- Airport size (Band A - S)
- Complexity
 - Application type: Entry, Upgrade, Renewal
 - Application level: 1 – 5
- Geographic dispersion
- Issues with previous applications if any

All other airports that require verification in that year but are not included in the on-site verification sample shall complete an off-site verification. Off-site verification will still include the collection and review of all data, common processes, and policies at one of the airports where an on-site verification is being completed that year. The application will be discussed via teleconference with the verifier. All verifications (both on-site and off-site) that are needed in that year shall be completed by the same verifier.

10.7 Verification and 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 shall make every effort to provide high quality data and other pertinent information to the verifier.

It is acknowledged that it may be difficult to determine if the 5% error threshold has been maintained for some Scope 3 emissions sources. 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 shall be assessed to a limited level of assurance, using professional judgement. For those emissions sources, the airport shall be able to demonstrate to the verifier that:

- The data available is as accurate as 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+, and Level 4 and 4+;
- Scope 3 calculations for Level 5 must follow the GHG Protocol Scope 3 Guidance and all categories that are relevant to the organisation should be included; and
- 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.

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 1st, 2014, and December 31st, 2014, and wants to start reporting annually between May 1st and April 30th, then the airport needs to next submit a carbon footprint covering the period May 1st, 2014, to April 30th, 2015. In this example, a carbon footprint for the period May 1st, 2015, to April 30th, 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 including both the:
 - Individual emissions data for each airport in the small airport group, and
 - Aggregated emissions data for all airports in the small airports group.
- Formulation of a common Carbon Management Plan (for Level 2 and higher).
- Formulation of a common target and trajectory in the Carbon Management Plan, with specific targets and trajectories for each individual airport submitted in attached documents (for Level 4 and 4+) outlining how each individual airport contributes to the group target.
- Development of a common Stakeholder Engagement Plan (for Level 3 or 3+).
Development of a common Stakeholder Partnership Plan, with specific measures and objectives in place for each individual airport (for Level 4 or 4+).

If this approach is adopted, the airport group shall demonstrate that each individual airport meets the requirements of the level of application (e.g., for a Level 2 application, each airport shall demonstrate an individual reduction in their carbon footprint).

① If during the renewal of a “Small Airports Group” application, an airport of the group does not meet the level specific requirements (e.g., Level 2 requirements), the operator shall 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 shall 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 shall 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 tCO₂e/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 shall 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 shall 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 shall 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 shall 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 be accredited at Level 2, 3 or 3+, airports shall 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., 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, 3 or 3+, subject to a clear evaluation process and to the final approval of the Advisory Board. An airport contemplating this approach shall undertake the following actions:

- 1) Contact the Administrator prior to submitting an application to explain the case for limited deviation.
- 2) Identify the exact proportion of CO₂e emissions that has been caused each year by the extreme event. This shall 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 shall 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 shall 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, 3 or 3+, 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

Airports can calculate a temperature corrected carbon footprint when experiencing annual variation in the weather (e.g., an extreme weather events or a change in normal temperatures over the course of a year). Using these figures, the airport is able to assess the effects and demonstrate the impacts of the difference in temperature on the carbon footprint.

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 efficiency²⁹.

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. This can help an airport demonstrate emissions reductions by removing excess emissions due to extreme weather from its carbon footprint. Airports and their verifiers shall ensure that the data used is from a robust and valid source, and that it is used consistently over time.

11.7 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 accreditation.

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.

If airports at Level 4 renew at their six-yearly renewal with emissions greater than 15% above their expected trajectory, they shall be given one year to reassess and re-apply rather than immediately losing their Level 4 accreditation. They shall re-apply with a revised trajectory, and, if necessary, a revised interim milestone or long-term target, which shall still be in line with the IPCC pathways. The new trajectory or target and any

²⁹ For more information see: <https://www.eea.europa.eu/data-and-maps/indicators/heating-degree-days-2>

additional actions or measures shall be submitted to the Administrator. Such an airport would remain on the original three-yearly renewal cycle so shall have to renew again two years on (if re-submitting a full year later).

Airports will only be allowed to redefine the target or milestone once in the run-up to the target/milestone date. For example, if an airport has a target for 2050 and an interim milestone for 2035, it can redefine once the interim milestone, and once the target. Airports shall also ensure that the new target or milestone meets all the requirements of the original target, e.g., the new target must be between ten and fifteen years into the future from the year the original target was set. If an airport has already redefined their interim milestone or long-term target once in the lead-up to the interim milestones or final target, the airport would only be able to re-define their trajectory.

If an airport does not meet an interim milestone or long-term target at renewal, the airport would lose their Level 4 or 4+ accreditation. The airport can then choose to apply at a lower accreditation level until it is able again to fulfil all requirements of Level 4 or 4+.

Similarly, for Level 5, if an airport does not meet the programme's requirements it will have to apply for a lower accreditation level. For example, targets must not be missed more than once each 3-year renewal period, or the airport will be asked to reapply to a more relevant level.

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.

12 ACA Accreditation Process

The following checklist provides basic information on the ACA accreditation process. Please contact the Administrator if you have any questions or require any support through your accreditation journey.

1. Do you qualify?

Are you a member of ACI in one of its regions?

- If not, please contact ACI to become a member.

2. Register your interest

To register your interest in the Programme, please sign up to ACA Online:

- www.aca-application.org/register/interest
- Enter your airport details and await a confirmation email to finalise the account set up. Signing up is free.

3. Do you meet ACA requirements?

- Download the Application Manual from ACA Online.
- Select the desired level and view the requirements on the Application Manual.

4. Calculate your carbon footprint

Gather the required information for your level and calculate your carbon footprint. There are 3 options for doing this:

- Undertake the work in house;
- Engage a consultant to assist you; or
- Use ACERT. See <https://store.aci.aero/form/acert/>

5. Pay the accreditation fee

- Check your ACA Online account for the correct fee;
- Contact the Administrator, who will raise an invoice;
- Request any financial documentation needed well in advance (please note that tax certificates can take up to 12 weeks or more); and
- Pay your invoice.

6. Complete the application

Please fill out the relevant questions in ACA Online³⁰ and attach supporting documentation, as relevant.

³⁰ <https://www.aca-application.org/login/>

NOTE: If you are renewing your application for the first time, or every two years after, you do not need verification. Steps 7 and 8 in this list do not apply to you, therefore.

7. Verification

To engage a Verifier for your application, you can:

- Either select a verifier from the list of approved verifiers on the website (<http://www.airportcarbonaccreditation.org/airport/verification/html>); or
- If you would like to engage an unapproved verifier, then please ask them to contact the Administrator. They will need to have verification experience, participate in a webinar and pass a short, online exam. There is a cost for becoming an approved verifier.

Once you have completed this process:

- Please select your chosen verifier and then submit your application.
- The verifier will log in using their own account and complete the verification questions.

8. Final Review Stage

At this stage, it is recommended you undertake a final review of the full application, including verifier comments, to ensure the submission is accurate and complete.

9. Administrator Review

Once your funds have cleared, the Administrator will review your application and contact you with your accreditation status. The Administrator Review can take up to 15 days (excluding public holidays) to complete. These timescales may be exceeded if the Administrator is required to ask for further information or clarification on an application.

10. Certificate and Publicity

Once you have achieved an accreditation status, ACI will issue your certificate with your level of accreditation and renewal date on it. Assistance on how to market and publicize your accreditation may also be provided, where required.

11. One year later...

Within a year, you will be asked to renew your accreditation, or upgrade to next level. At this stage, please repeat Stages 4-10, as applicable. Please ensure that you submit your full application at least one full month before your renewal date.

13 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 4+.



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 13). 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 13 - Carbon Footprint of Middletown Airport (Scope 1 & 2 emissions)

SOURCE OF EMISSIONS	SCOPE	TONNES OF CO2e
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
Total		40.685

In 2018 the airport renewed at the same level of accreditation, and therefore the carbon footprint for 2017 (i.e., 40.000 tonnes of CO₂e) and relevant application did not have to be



In 2019 the airport decided to upgrade to Level 2. Firstly, the airport calculated the 2018 carbon footprint (i.e., 39.000 tonnes of CO₂e). It also set an absolute target to reduce by 2025 its Scope 1 and 2 emissions by 20% below the 2015 baseline year (i.e., 42.000 tonnes); a reduction target of 8.400 tonnes of CO₂e.

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 baseline 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 Application Manual.



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 14). 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 14 - 2019 Carbon Footprint of Middletown Airport (Scope 1, 2, & 3 emissions)

SOURCE OF EMISSIONS	SCOPE	TONNES OF CO2e
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
Total Scope 1 & 2		38.070
LTO cycle	3	136.200
Engine testing	3	100
APU	3	12.825
Electricity resold to partners/tenants	3	16.875
3 rd party GSE	3	2.200
Surface access	3	158.500
Airport staff business travel	3	110
Total Scope 3		326.810
Total Scope 1, 2, & 3		364.880

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 Application Manual.

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 CO₂e and airport staff business travel emissions of 100 tonnes of CO₂e. Consequently, in 2022 Middletown airport would need to offset 35.000 tonnes of CO₂e.

After a thorough market search and consultation of the Offset Guidance, the airport concluded that the purchase of CERs from the UNFCCC (through the Climate Neutral Now website, 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. 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 CO₂e emissions.



Middletown airport decided to upgrade to Level 4 the following year and chose to include Scope 1 and 2 emissions in their target. Firstly, the airport set their long-term target as Net Zero in 2050, following the 1.5°C pathway. They also set an interim milestone of 59% decrease by 2035 compared to their 2010 baseline year emissions (51.000 tonnes). This meant Middletown airport's carbon footprint in 2035 for Scope 1 and 2 emissions would need to be 20.910 tonnes. Following this, the airport updated their Carbon Management Plan with the details of their trajectory to reach first their interim milestone in 2035 and then the long-term target in 2050. This included the initiatives Middletown would implement and the expected decrease in emissions. For example, Middletown airport plans to replace all vehicles with electric vehicles in 2027 and this would decrease their carbon footprint by 2.000 tonnes.

Middletown airport's carbon footprint for 2022 was updated to include construction emissions in Scope 1 and cruise, climb and descent aircraft emissions and offsite process emissions of waste and sewage in Scope 3. In addition to this, the airport developed a Stakeholder Partnership Plan to replace their existing Level 3 Stakeholder Engagement

Plan. Middletown airport wanted to enforce restrictions on the use of GSE as well as to provide preferential treatment for airlines with lower emissions during aircraft taxiing. The application was verified in accordance with the relevant requirements, while the verifier also confirmed that the targets and milestones and the Stakeholder Partnership Plan was developed in accordance with the Application Manual.



However, when Middletown airport became aware of Level 5, it made every effort to reach the programme's highest accreditation level. Through a number of initiatives, including extensive vehicle electrifications, use of renewable energy sources, etc. it managed to reduce its 2023 Scope 1 and 2 carbon footprint of 30.000 tonnes by 95%, to only 1.500 tonnes. For these 1.500 tonnes, the airport purchased credible offset removals in accordance with the provisions of the Offset Guidance document. In addition, the airport committed to Net Zero in Scope 3 by 2050, taking into consideration the Net Zero commitments of ICAO, while it met all other relevant requirements (e.g., Stakeholder Partnership Plan).

14 Appendix I: Guidelines for Engaging a Verifier

Independent third-party verification by an approved *Airport Carbon Accreditation* verifier is an essential hallmark and component of the programme.

Verification provides confidence that an airport has met all the requirements for accreditation at the level at which it is applying. In order to help an airport engage an impartial and independent third-party *Airport Carbon Accreditation* verifier, these indicative procurement guidelines may be used when an airport is choosing a verifier through a formal Request for Proposal (RfP). Airports should adjust the wording of these guidelines in accordance with their needs, conditions, and legal requirements, etc.

14.1 Introduction and Purpose of the Request for Proposal (Rfp)

With this RfP we (airport name) invite you to tender for the independent third-party verification of our application for accreditation under the *Airport Carbon Accreditation* programme at (insert level for which applying).

Your role would be to review and sign off on the content, calculations and documents and any necessary amendments or clarifications to our airport's application before it is submitted by us to the Administrator for accreditation under the programme.

The Administrator will then assess whether a) the application has been prepared in line with the *Airport Carbon Accreditation* Application Manual and, b) the verification has been properly conducted according to the programme rules, and therefore whether or not our application for accreditation can be approved. The Administrator is the sole independent arbiter of whether or not we can be accredited under the programme.

14.2 Format, Structure and Scope of Verification

The format of the complete verification process will be subject to further discussion with us. We would expect you to review all sources of actual data, processes, and policies, carry out a site visit, and write up both a final verification report and complete the ACA Online application form. The process is detailed in the latest version of the Verifiers Manual.

There are specific circumstances under which an airport may apply to the Administrator for an off-site verification. If this request is approved the verifier will not have to carry out a site-visit.

14.3 Content of Offer

In your offer you must:

- Provide a copy of your CV;
- Provide evidence that you are an approved verifier for the *Airport Carbon Accreditation*

programme;

- Indicate whether you have carried out any independent verifications under the programme within the last two years (or earlier) giving the names of the airports concerned, date(s) of verification(s) and accreditation levels. (Note: whilst *Airport Carbon Accreditation* verification experience is a plus, applications from first time *Airport Carbon Accreditation* verifiers are welcome);
- Provide one reference from an airport for which you have carried out a verification (if you are not a first time *Airport Carbon Accreditation* verifier);
- Identify the specific services and activities for which you are tendering as part of your Verification;
- Indicate the input required from the airport to support the verification, e.g., in terms of data;
- Indicate the estimated time (in days) for carrying out the required verification, identifying travel days as needed separately;
- Provide a fixed fee quotation to undertake the verification services, considering e.g.:
 - The level of accreditation that we are applying for (individually or as an airport group)
 - Our airport size and geographic location etc.
 - The need for a site visit
- To enable you to put forward a suitable quotation you may contact the undersigned (name and contacts) for further information.

(Name / contact details)

14.4 Form and deadline

Your offer must be in electronic form unless specifically agreed otherwise and must reach (named contact) by (time/date).