Appendix 13-7: Carbon Reduction Strategy

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Delivering a better world

Prepared for:

daa plc.

Prepared by:

AECOM Infrastructure & Environment UK Limited
100 Embankment
Cathedral Approach
M3 7FB, Manchester
United Kingdom

T: +44 (0)117 901 7000
aecom.com

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Table of Contents

1. Introduction 1
1.1 Background Information 1
1.1.1 Overview 1
1.1.1.1 Dublin Airport Local Area Plan – Objective CA02 1
1.1.1.2 Dublin Airport Carbon Reduction Strategy 1
2. Policy, Legislation & Regulation 2
3. Strategy Scope 2
4. Carbon Emissions 3
4.1 Summary 3
5. Carbon Reduction Approach 6
5.1 Approach Overview 6
5.2 Dublin Airport Carbon Reduction Strategy 7
5.3 The Applicant's Environmental Sustainability Policy 9
5.4 Mitigation 10
5.4.1 Aviation 10
5.4.2 Surface Access Journeys 11
5.4.3 Airport Operations 12
6. Review 14
Appendix A Legislation, Policy & Guidance 15

Abbreviations 24

Tables

Table 1: Scope of the Carbon Reduction Strategy (Emissions sources) 2
Table 2: Existing GHG emission mitigation measures[2] 7
Table 3: Short term (2030) carbon reduction targets[2] 8
Table 4: Additional short term (2030) carbon reduction aims[7] 9
Table 5: Aviation mitigation measures 10
Table 6: Surface Access Journeys mitigation measures 12
Table 7: Airport Operations mitigation measures 13

Figures

Figure 1: Airport Operations, Surface Access Journeys and Aviation Emissions on the Proposed Order and the Baseline Scenario with Mitigation Policies Applied 4

1. Introduction

1.1 Background Information

Overview

This Proposed Order Carbon Reduction Strategy (CRS) has been developed on-behalf of the Dublin Airport Authority PLC (daa) as part of a Proposed Order which seeks permission for the expansion of Dublin Airport's ("the airport") current permitted capacity of 32 million passengers per annum (mppa) to 40 mppa by 2029 ("the Proposed Order").

The Proposed Order site ("the Site") relates to all passenger buildings currently in-situ at the airport; these include: the Old Central Terminal Building, Piers 1, 2, 3 and 4, the South Gates, and the Passenger Transfer Facility. No construction works are proposed as part of the Proposed Order.

This Proposed Order CRS presents a strategy for the mitigation of additional emissions resulting from the airport's increased operational capacity under the Proposed Order. This Proposed Order CRS draws on emission reduction measures identified within existing operational plans as well as those managed by key national and international policy and legislation. This approach is compliant with the Dublin Airport Local Area Plan[1] and its climate action objectives (specifically, Objective CA02). Measures to decarbonise the wider activities of the airport as part of its commitment to being net zero by 2050 are covered by the Dublin Airport Carbon Reduction Strategy (CRS)[2].

Dublin Airport Local Area Plan – Objective CA02

The Proposed Order CRS has been developed in response to Objective CA02 of the Dublin Airport Local Area Plan 2020, which requires that:

"*Major applications for aviation related expansion at Dublin Airport shall be supported by a carbon reduction strategy to include mitigation measures for implementation as part of development proposals*".

The Proposed Order CRS summarises the mitigation actions and commitments that will enable the Proposed Order to be delivered and operated in accordance with Dublin Airport's emissions reduction targets and contribute to both Dublin Airport's and Ireland's target of net zero emissions by no later than 2050.

The Proposed Order CRS considers the potential emissions associated with the uplift from 32 mppa to 40 mppa across three key sources: aviation, surface access journeys, and airport operations of the Proposed Order. The scope of these emission sources is covered in Table 1. The approach to the mitigation of emissions for each of these three key sources is dependent on the level of control or influence the Applicant has over them. As presented in Table 1, emissions from aviation and surface access journeys are considered outside of the direct control of the Applicant. While the Applicant has some influence over emissions from these sources, they are largely managed at a national and international level by policy, legislation and regulation. Emissions from airport operations largely fall under the direct control of the airport and this is where the Applicant has the most opportunity to reduce emissions through the implementation of mitigation.

Dublin Airport Carbon Reduction Strategy

The Dublin Airport CRS has been drafted to account for the emissions arising specifically from the Proposed Order. Also, emissions attributed to the wider activities of the airport are accounted within the Dublin Airport CRS[2]. The adopted Dublin Airport CRS exemplifies the Applicant's wider sustainability commitments, forming part of the airport's strategic plan to reduce overall emissions by 51% by 2030 and achieve net zero carbon emissions by 2050. Section 5.2 of this Strategy provides a detailed overview of the wider Dublin Airport CRS, including existing carbon reduction measures and targets[2] (see Table 2; Table 3).

Aspects of the Dublin Airport CRS will have a direct impact on the emissions associated with the Proposed Order. Therefore, the wider Dublin Airport CRS should be read alongside this Proposed Order CRS for a comprehensive

[1] Dublin Airport Local Area Plan (LAP) 2020. Available at: dublin-airport-lap-2020.pdf (fingal.ie) p34
[2] Dublin Airport Carbon Reduction Strategy. Available at: dublin-airport-carbon-reduction-strategy.pdf (dublinairport.com)

overview of carbon reduction measures adopted across the airport's operation including the Proposed Order, should it be granted.

2. Policy, Legislation & Regulation

This strategy considers how the Proposed Order will align with relevant policy, legislation and regulation on climate. Many of the key emission sources predicted to be generated as a result of the Proposed Order will be managed and mitigated by national and international policy and legislation i.e., enabling uptake of different technologies. The policies and legislation relevant to this Proposed Order CRS are presented in Appendix A of this document.

3. Strategy Scope

Table 1 sets out the emissions sources considered within this Proposed Order CRS and provides a description of the Applicant's level of control and how they are addressed in this Strategy.

Table 1: Scope of the Carbon Reduction Strategy (Emissions sources)

Emissions source	Scope (description of emissions sources)	Level of control by the Applicant	How addressed in this strategy?
Aviation	Cruise, climb and descent: Aircraft in Climb, Cruise, Descent (CCD) phase for flights departing from the airport. To avoid double counting of emissions with other airports best practice is to include departing flights only from 3,000ft after departure to the destination airport.	Limited	Mainly controlled through international and national policy and regulation. The Applicant has limited opportunity to influence and mitigate emissions when aircraft are in the CCD phase for flights.
	Landing take-off cycle: Aircraft in the Landing Take-off (LTO) phase for flights. This includes aircraft on arrival below 3,000ft, taxiing, on stand and departing up to 3,000ft.	Limited	Mainly controlled through international and national policy and regulation. The Applicant has some opportunity to mitigate and influence emissions when aircraft are on the ground, for example, by maximising efficiency of taxiing or providing low carbon energy sources.
Surface access journeys	• Passenger surface access to/from the airport; • Staff surface access to/from the airport; and • Freight transport journeys to/from the airport.	Limited	Mainly controlled through national policy and regulation to decarbonise transportation. The Applicant has some opportunity to influence emissions from vehicles travelling to/from the airport, for example, by providing the necessary opportunities to encourage modal shift from personal motor cars to public transport.
Airport operations	• The consumption of electricity in airport buildings, ground support equipment and ground power units; • The consumption of natural gas and other fuels in airport buildings and generators; • Fugitive emissions from the use of refrigerants and de-icer; • Consumption of fuel and electricity in airport operational vehicles; • Fire training activities; • Disposal of waste; • Business travel; and • The supply of potable water.	Direct control/ influence	The Applicant has direct control of emissions from airport operations. Measures to mitigate emissions from these sources are presented in this strategy.

4. Carbon Emissions

4.1 Summary

This Section presents the results of the greenhouse gas (GHG) assessment outlined within Chapter 13: Climate of the Proposed Order EIAR. This GHG assessment sought to understand the significance of the impact of the Proposed Order on the climate, taking into account the embedded and good practice mitigation measures noted within Section 5.4 of this CRS and the assessment assumptions noted within Chapter 13: Climate of the Proposed Order.

The GHG emissions impact of the Proposed Order is defined within Chapter 13: Climate of the Proposed Order as all material additional emissions arising because of the operation of infrastructure and assets being brought forward through the Proposed Order. This impact has been quantified as follows:

- **Permitted Operation:** the 32.0 mppa Permitted Operation has been projected from 2029 to 2050. The assessment incorporates projected changes in aircraft movements and fleet mix over this period so that future changes in aircraft technology and efficiency are reflected in the aviation carbon modelling.
- **Proposed Operation:** the 40.0 mppa Proposed Operation has been projected from 2029 to 2050, incorporating the same assumptions regarding future changes in aircraft fleet mix and technology as applied to the Permitted Operation.

The following Supporting Assessments have also been undertaken to provide additional context to the Principal Assessment. These Supporting Assessments do not form part of the assessment of likely significant effects of the Proposed Order.

- **Supporting Assessment 1 compares the 2023 Baseline Operation (32.0 mppa) with the 2029 Proposed Operation (40.0 mppa).** This assessment provides context on the overall change in GHG emissions between the 2023 Baseline Operation and the 2029 Proposed Operation.
- **Supporting Assessment 2 compares the 2025 Current Operation (36.4 mppa) with the 2029 Proposed Operation (40.0 mppa).** This assessment provides context on the change in GHG emissions between current airport operations and the 2029 Proposed Operation.
- **Supporting Assessment 3 compares the 2025 Current Operation (36.4 mppa) with the 2029 Permitted Operation (32.0 mppa).** This assessment provides context on the relationship between current airport operations and the future permitted scenario used as the comparator for the Principal Assessment.

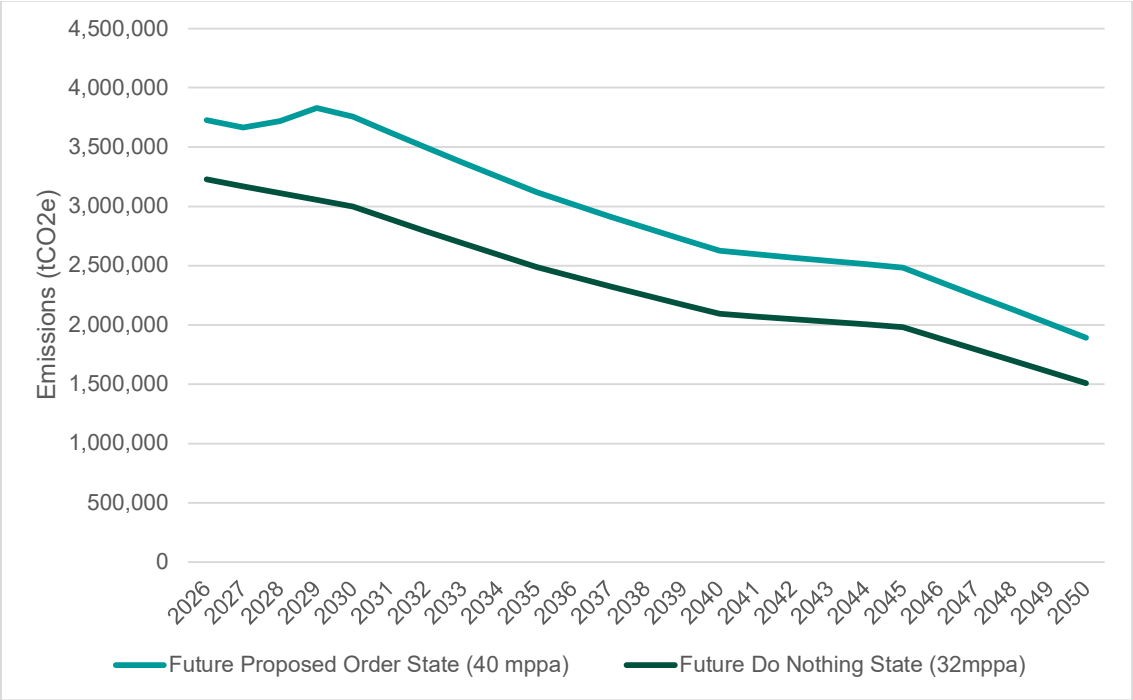
See Appendix 13-1 and Chapter 13: Climate for a full breakdown of the GHG assessment methodology.

These assessments were done for each of the three main sources of emissions—airport operations, surface access journeys, and aviation.

As emissions will continue over the operational life of the Airport, the emissions are assessed from the present day to 2050 to identify if the emissions impact Ireland's net zero trajectory.

The overall GHG emissions, including airport operations, surface access journeys and aviation emissions, for the Proposed Order and the Future Do Nothing State are presented in Figure 1**Error! Reference source not found.** between 2026 to 2050.

Figure 1: Airport Operations, Surface Access Journeys and Aviation Emissions on the Proposed Order and the Baseline Scenario with Mitigation Policies Applied[3]



Principal Assessment

Total emissions associated with all three emission sources (aviation, airport operations and surface access) are shown in Table 2 for the Principal Assessment.

Table 2: Principal Assessment total emissions against Ireland's Transport and National Emissions Trajectories (ktonnes CO2e)

Year	Baseline Operation (32 mppa)	Proposed Operation (40 mppa)	Emissions Variation	Ireland's Transport Emissions Trajectory (With Additional Measures)	Ireland's National Emissions Trajectory (With Additional Measures)	Total emissions variation as a % of carbon Ireland's Transport Emissions	Total emissions variation as a % of carbon Ireland's National Emissions
2029-2030	6,537	8,187	1,650	19,864	92,273	8%	2%
2031-2035	14,594	18,280	3,686	46,380	212,458	8%	2%
2036-2040	12,242	15,332	3,091	39,958	197,619	8%	2%
2041-2045	10,901	13,656	2,754	32,034	178,702	9%	2%
2046-2050	9,051	11,339	2,288	25,700	163,169	9%	1%

[3]This only includes gross emissions with Proposed Order and not net emissions.

Supporting Assessment 1 – 2023 Baseline Operation to Proposed Operation

Total emissions associated with all three emission sources (aviation, airport operations and surface access) are shown in Table 3 for this assessment scenario.

Table 3: Supporting Assessment 1 total emissions against Ireland's Transport and National Emissions Trajectories (ktonnes CO2e)

Year	Baseline Operation (32 mppa)	Proposed Operation (40 mppa)	Emissions Variation	Ireland's Transport Emissions Trajectory (With Additional Measures)	Ireland's National Emissions Trajectory (With Additional Measures)	Total emissions variation as a % of carbon Ireland's Transport Emissions	Total emissions variation as a % of carbon Ireland's National Emissions
2023-2025	11,020	11,020	0	35,142	161,930	0.0%	0.00%
2026-2030	16,784	20,171	3,387	52,518	242,333	6.4%	1.40%
2031-2035	14,594	18,280	3,686	46,380	212,458	7.9%	1.73%
2036-2040	12,242	15,332	3,091	39,958	197,619	7.7%	1.56%
2041-2045	10,901	13,656	2,754	32,034	178,702	8.6%	1.54%
2046-2050	9,051	11,339	2,288	25,700	163,169	8.9%	1.40%

Supporting Assessment 2 – 2025 Current Operation to Proposed Operation

Total emissions associated with all three emission sources (aviation, airport operations and surface access) are shown in Table 4 for this assessment scenario.

Table 4: Supporting Assessment 2 total emissions against Ireland's Transport and National Emissions Trajectories (ktonnes CO2e)

Year	Current Operation (36.4 mppa)	Proposed Operation (40 mppa)	Emissions Variation	Ireland's Transport Emissions Trajectory (With Additional Measures)	Ireland's National Emissions Trajectory (With Additional Measures)	Total emissions variation as a % of carbon Ireland's Transport Emissions	Total emissions variation as a % of carbon Ireland's National Emissions
2026-2030	18,971	20,171	1,200	52,518	242,333	2%	0%
2031-2035	16,491	18,280	1,789	46,380	212,458	4%	1%
2036-2040	13,832	15,332	1,501	39,958	197,619	4%	1%

Year	Current Operation (36.4 mppa)	Proposed Operation (40 mppa)	Emissions Variation	Ireland's Transport Emissions Trajectory (With Additional Measures)	Ireland's National Emissions Trajectory (With Additional Measures)	Total emissions variation as a % of carbon Ireland's Transport Emissions	Total emissions variation as a % of carbon Ireland's National Emissions
2041-2045	12,320	13,656	1,336	32,034	178,702	4%	1%
2046-2050	10,230	11,339	1,109	25,700	163,169	4%	1%

Supporting Assessment 3 – 2025 Current Operation to Permitted Operation

Total emissions associated with all three emission sources (aviation, airport operations and surface access) are shown in Table 5 for this assessment scenario.

Table 5: Supporting Assessment total emissions against Ireland's Transport and National Emissions Trajectories (ktonnes CO2e)

Year	Current Operation (36.4 mppa)	Future Permitted Operation (32 mppa)	Emissions Variation	Ireland's Transport Emissions Trajectory (With Additional Measures)	Ireland's National Emissions Trajectory (With Additional Measures)	Total emissions variation as a % of carbon Ireland's Transport Emissions	Total emissions variation as a % of carbon Ireland's National Emissions
2026-2030	18,971	16,784	-2,187	52,518	242,333	-4%	-1%
2031-2035	16,491	14,594	-1,897	46,380	212,458	-4%	-1%
2036-2040	13,832	12,242	-1,590	39,958	197,619	-4%	-1%
2041-2045	12,320	10,901	-1,418	32,034	178,702	-4%	-1%
2046-2050	10,230	9,051	-1,179	25,700	163,169	-5%	-1%

5. Carbon Reduction Approach

5.1 Approach Overview

The following section sets out the approach to carbon reduction for the Proposed Order. This Proposed Order CRS is a standalone document that focuses on managing and mitigating carbon emissions that specifically arise as a result of the Proposed Order.

The approach to carbon reduction, however, will be influenced by a combination of national policy on carbon reduction, existing sustainability, and carbon reduction strategies for the airport as well as Sustainability Design Guidelines for new development.

5.2 Dublin Airport Carbon Reduction Strategy

In 2021, the Applicant produced the Dublin Airport CRS[2] in response to the FCC Dublin Airport Local Area Plan 2020 and the FCC Climate Change Action Plan[4]. The Dublin Airport CRS presents the Applicant's approach to achieving a 51% carbon emissions reduction by 2030 (against a 2018 baseline) in line with the Irish Government's Climate Action Plan 2021[5] and its respective emissions reduction targets. The reduction measures noted within the Dublin Airport CRS have been introduced across the wider airport; therefore, it is assumed that these measures will have a direct impact on the emissions associated with the Proposed Order.

By the end of 2021, the national legal and policy context in which Dublin Airport operates had changed significantly with regard to the introduction of new legislation regarding carbon, energy, air quality and climate change. In response to changing legislation requirements which introduced increased targets for carbon reduction and energy efficiency the Applicant updated the CRS in 2022[2]. This update facilitated:

- Incorporation of new legislative requirements and increased carbon reduction targets;
- Future proofing for Fingal Development Plan 2023-2029 to support FCC in working towards becoming a low carbon economy;
- Achievement of Airport Carbon Accreditation Level 4 by 2025;
- Engagement with Commission for Aviation Regulation Ireland (CAR) on reassessing the current CIP 2019 – 2024 to accommodate additional requirements; and
- Identification of new sustainability projects which form part of Dublin Airport's carbon reduction measures.

Dublin Airport achieved an approximate 25% reduction in overall carbon emissions from airport operations between 2013 and 2019, despite a 63% increase in passenger numbers during the same period.

Dublin Airport has implemented GHG mitigation measures to manage and reduce GHG emissions, including the energy management measures listed in Table 6. For example, in 2019, Dublin Airport had reduced the amount of primary energy used per m^2 by 48% (kWh/m^2), when compared to a 2006-2008 baseline[2] (Table 6).

Table 6: Existing GHG emission mitigation measures[2]

Activity	Description / Impact	Completion Date
Participated in the Sustainable Energy Authority of Ireland's (SEAI's) Public Sector Partnership Programme.	Reduced primary energy use on a floor space basis by 48% (kWh/m^2).	2019
Bus fleet electrification.	Updated vehicle fleet with Light Electrical Vehicles (LEVs) to reduce scope 1 emissions. Secured a contract for landside buses in May 2022 to fully transition landside bus fleet to EV.	Ongoing (April 2024)
Certified asset management system (ISO 55001).	The first airport to certify an asset management system under the ISO 55001 standard. This enables a cycle of continual review of energy practices and initiatives to improve energy performance and reduce GHG emissions associated with operational building energy use.	2015
Awarded Leadership in Energy and Environmental Design (LEED) Platinum certification for the "*One Dublin Central*" refurbishment.	Achieved the minimum threshold of 80 LEED certification points across categories including: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources; Indoor Environmental Quality.	2017
Achieved SEAI Excellence in Energy Efficient Design (EXEED)	One of the first Irish organisations to successfully deliver a project across all three stages of the SEAI EXEED (e.g., design, verify and management). The project involved lighting upgrades to the Terminal 1	2018

[4] FCC and Codema (2019). Fingal County Council Climate Change Action Plan 2019-2024. Available at: https://www.fingal.ie/sites/default/files/2019-08/20190812_fcc_climate_change_action_plan_final_0.pdf
[5] Government of Ireland (2021). Climate Action Plan 2021: Securing Our Future. Available at: www.gov.ie/pdf/?file=https://assets.gov.ie/224574/be2fecb2-2fb7-450e-9f5f-24204c9c9fbf.pdf#page=null

Activity	Description / Impact	Completion Date
status across all three stages - design, verify and manage.	multi-storey and surface car parks in which 690 light emitting diode (LED) lights were installed, saving 964,500kWh of electricity annually.	
Achieved ACA Neutrality level (3+).	Fulfilled all requirements of ACA levels of Mapping, Reduction, and Optimization. Remaining scope 1 and 2 carbon emissions were offset, as well as staff business travel using internationally recognized offsets.	2020
Installed on-site renewable electricity generation.	Installation of a small-scale solar Photovoltaic (PV) Solar Farm with a generating capacity of 110kWp.	2018
Installation of on-site renewable electricity generation.	Development of a large-scale solar PV Solar Farm (Phase 1), with generating capacity of 9.1MWp; has resulted in the reduction of GHG emissions from energy use.	2024
Installation of on-site renewable electricity generation.	Commenced development of an additional large-scale PV project (Phase 2). This will likely have an initial generating capacity of 4MWp progressing towards an aggregated generating capacity of 12MWp. Plans also include the provision of battery storage and a control system to enhance GHG emissions reduction from energy use.	2025
Development of off-site sustainable waste management and renewable energy generation.	Options for the development of off-site sustainable waste practices and subsequent renewable energy generations include: Development of a framework contract for waste disposal to a third-party anaerobic digestion (AD) plant with the desire to purchase biogas. *Or* Development of a joint venture with an off-site AD plant.	Ongoing
Completed a construction project in line with Part L[6] Nearly Zero Emission Building (nZEB) standard.	During the design and construction of the Landside Facility and Snow Base building, Dublin Airport met the 'Target Emission Rate' required and undertook analyses of the technical, environmental, and economic feasibilities of high-efficiency alternative systems. This was completed under Regulations 26 and 25A of the Future Homes Standard respectively.	2021
Installed LED lighting.	LED light upgrades across several campus and terminal buildings, reducing energy demand.	2021
Upgraded heating and ventilation.	Terminal 1 Chiller Heating Ventilation and Air Conditioning (HVAC) Replacement, together with boiler upgrades and pipework replacements.	2021
Introduced Advanced Visual Docking Guidance (AVDGS).	Reduction of emissions associated with support vehicle engine running and less occurrences of aircraft holding on taxiways.	2021
Installed Fixed Electrical Ground Power (FEGP) units at terminal contact gates.	All contact gates at Terminal 1 and 2 have been equipped with 400Hz FEGP. This reduced LTO GHG emissions associated with Auxiliary Power Unit (APU) operation when planes are on the ground.	2019
Installed EV chargers.	Installation of approximately 90 EV across the campus including Airport car parks and taxi holding areas; this facilitated a reduction in Scope 3 emissions associated with commuter travel. Current EV charging capacities varying between 22kW (ac) and 15kW (dc).	2021

The Applicant has identified a series of ongoing GHG reduction targets in its Dublin Airport CRS. Table 7 describes the targets the Airport is committed to in the short term, which include measures to address Scope 3 emissions related to surface access and aviation. These will continue to be implemented without the Proposed Order.

Table 7: Short term (2030) carbon reduction targets[2]

Activity	Description / Impact	Target Date	Extent of Airport Control
Increase onsite renewable energy generation by 10%.	Reduction in GHG emissions from energy use in line with Dublin Airports target to reduce emissions from thermal and transport sources by 51%.	2030	Direct
Exceed public sector target for building energy efficiency improvement (50%) by 15%.	Reduction in GHG emissions from energy use in line with Dublin Airports target to reduce emissions from thermal and transport sources by 51%.	2030	Direct

[6] The Building Regulations (2010). Conservation of fuel and power - Volume 1: Dwellings (2023). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1133079/Approved_Document_L__Conservation_of_fuel_and_power_Volume_1_Dwellings__2021_edition_incorporating_2023_amendments.pdf

Ensure 50% of space heating originates from renewable sources.	Reduction in GHG emissions from energy use in line with Dublin Airports target to reduce emissions from thermal and transport sources by 51%.	2030	Direct

5.3 The Applicant's Environmental Sustainability Policy

The Applicant's airport wide Environmental Sustainability Policy[7] will influence carbon emissions from the airport and those attributed to the Proposed Order. The Policy is aligned to six of the United Nation's Sustainable Development Goals[8] and includes the Applicant's clear commitments to environmental sustainability by 2030 (Table 8). The Applicant recognises as an airport operator that it can and must do more to reduce the impacts of its operations on the surrounding environment. Therefore, by 2030, the implementation of the aims outlined within Table 8 will have transformed the impact of operations across the airport.

The key aims across these core pillars of the Applicant's Environmental Sustainability Policy will be considered and integrated into the Proposed Order where relevant.

Table 8: Additional short term (2030) carbon reduction aims[7]

Core Pillars	The Applicant's Aim	The Applicant's Target (by 2030)
Carbon	Deliver on commitments to achieve Net Zero Carbon Emissions at Dublin Airports by 2050.	• Deliver a 50% reduction in our carbon footprint vs. 2019. • Be a Top 10 European Airport for CO_2 emissions reduction per pax. • Achieve ACI Level 4+ accreditation for our airports.
Energy	Position the Applicant as an airport leader on 'Clean Energy'.	• Exceed public sector target for energy reduction by 15%. • Produce 10% of Dublin Airport's annual energy on-site. • Reduce fossil fuels by 25% vs. 2019.
Waste	Transition to a truly 'Green Circular' business.	• Send zero waste to landfill across daa. • Drive a 30% reduction in general waste vs. 2019. • Recycle 90% construction waste (60% operational).
Water	Deliver best-in-class water systems, which significantly reduce usage.	• Reduce water usage per pax by 15% vs. 2019. • Ensure >40% rainwater capture.
Noise	Adopt a 'balanced approach' to noise - and effectively reduce exposure in our communities.	• Fully implement ICAO 'Balanced Approach'. • Deliver key Noise Abatement Measures. • Deliver environment-related Airport Charges.
Air Quality	Create 'Clean Air' airports and environments.	• Ensure zero air quality pollution exceedances. • Convert entire light fleet to Low Emission Vehicles. • Have Fixed Electrical Ground Power - all contact stands.
Biodiversity	Protect and revitalise our airport ecosystems.	• Achieve pesticide and herbicide-free airports. • Protect, and create new, ecosystems. • Plant native woodlands and wildflowers.

[7] Daa (2018). Environmental Sustainability Policy. Available at: environmental-sustainability-policy.pdf
[8] United Nation's Department of Economic and Social Affairs (2024). The 17 (Sustainable Development) Goals. Available at: THE 17 GOALS | Sustainable Development

5.4 Mitigation

This section of the Proposed Order CRS outlines measures that will be implemented to manage and reduce carbon. As set out within Section 2, a large proportion of the emissions that arise as a result of the Proposed Order sit outside the airports direct control and are manged by national and international policy. This particularly applies to emissions from aviation and surface access; however, the airport has direct control over emissions from airport operations. This is reflected in the following section.

Aviation

Aircraft movements are divided into both the Landing and Take Off Cycle (LTO) and the Climb, Cruise and Descent (CCD) phases. The Applicant has the potential to influence emissions across both phases (Table 1); therefore, mitigation measures include investments into infrastructure which promote the emission reductions from aviation fuel consumption while aircraft are on the ground and departing the airport (Table 9).

Measures to mitigate the additional emissions attributed to increased aircraft movements under the Proposed Order are shown in Table 9 below.

Table 9: Aviation mitigation measures

Source	Description/ Impact	Applicable Flight Phase	Date
Sustainable Aviation Fuels (SAFs)	Airport operator to create transition plan and develop initial infrastructure for the future implementation / take up of SAFs.	LTO, CCD	Ongoing
Collaboration	Airport operator to collaborate with their respective stakeholder groups to set pathways to reach net zero emissions by 2050.	LTO, CCD	Ongoing
Aircraft emissions	Airport operator to implement infrastructure that enables parked aircraft to: • Connect to Fixed Electrical Ground Power (FEGP) units at terminal contact gates; and • Refuel with SAFs.	LTO, CCD	Ongoing

Aviation is estimated to contribute approximately 93% of the GHG emissions of the Proposed Order in 2026. Aviation emissions are outside the direct control of the Applicant and will be controlled predominately through international and national policy and regulation. However, as outlined within Table 1, the Applicant has some limited opportunity to influence and mitigate aviation emissions (Table 9).

Fundamental to managing and controlling GHG emissions from the aviation sector are two market-based measures, the European Union (EU) Emissions Trading Scheme (ETS)[9] and Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)[10]. All emissions from aircraft using the airport will fall under one of these two Schemes. The EU ETS provides a cap on the amount of carbon which participating airlines within intra-EU aviation can emit. Under the updated 'Fit for 55' EU policy[11], there is a requirement that ETS emissions must be cut by 62% by 2030 compared to 2005, to remain on track towards the EU's goal of net zero by 2050. Airlines receive a free allocation of allowances that will cover some of their emissions but must buy emissions allowances at auction or the secondary market to cover the remainder. The available allowances place a cap on the total amount of GHGs that can be emitted across the EU. The free allowances were phased out gradually with full auctioning implemented from January 2026 under the 'Fit for 55' package. This placed a binding cap on the overall emissions within the ETS, including from airline operators. It is likely the cost to airline operators of purchasing carbon allowances will ultimately be reflected in the cost of tickets to passengers which could impact demand if emissions per light are not reduced.

Emissions not falling under the EU ETS (non-traded emissions) will be managed through CORSIA. Most recently, at its 41st Assembly, ICAO set 85% of 2019 emissions as CORSIA's baseline from 2024 until the end of the scheme in 2035: a significantly more ambitious target than originally planned, which the industry supported. The division of

[9] European Commission, (2022). EU Emissions Trading System (EU ETS). Available at: https://climate.ec.europa.eu/eu-action/eu-emissions-trading-system-eu-ets_en (Accessed 10/07/2023).
[10] ICAO, (2023). Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Available at: https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx (Accessed 10/07/2023)
[11] Council of the European Union. (n.d.). *Fit for 55 - The EU's plan for a green transition*. Available at: https://www.consilium.europa.eu/en/policies/green-deal/fit-for-55/

responsibilities between the EU ETS and CORSIA, for managing aviation emissions, is referred to as the 'clean cut'. The European Council and Parliament agreed that after the 42nd Assembly of the ICAO, in 2025, the Commission will assess if the implementation of CORSIA is sufficient to reduce aviation emissions considering the objective of the Paris agreement. . If CORSIA delivers on its objectives, the Commission will make a proposal to the Council and Parliament to extend the 'clean cut'. If CORSIA is not sufficient, the Commission will make a proposal to extend the scope of ETS to all flights departing from the European Economic Area (EEA). In 2026, the EU Council and Parliament will assess whether the implementation of CORSIA in this way is sufficient to reduce aviation emissions in light of Paris Agreement targets. If CORSIA is deemed to be delivering on these objectives, the EU Council and Parliament may opt extend the use of CORSIA to control extra-EU aviation emissions that do not fall under EU ETS. If CORSIA is not deemed to be sufficient, the scope of EU ETS may be extended to all flights departing from the EEA (i.e. both intra- and extra-EU flights).

The EU Commission's ReFuelEU Aviation Proposal[12] is a key part of the 'Fit for 55' EU Policy and sets targets for uptake of Sustainable Aviation Fuels (SAFs). The proposal aims to reduce direct emissions from aviation by at least 70% on a per flight basis, including SAF uptake targets for fuel use of 2% in 2025 and 70% by 2050 (with intermediate targets 6% in 2030 and 20% in 2035). The successful implementation of Refuel EU Aviation requires collaboration across all parties in the supply chain, including aviation fuel suppliers, EU airports, and airlines. Airport operators are expected to facilitate access to the necessary infrastructure to deliver, store, and refuel aircraft with SAFs[13]. The Applicant will facilitate the mitigation of aviation emissions through the creation of a transition and development plan for infrastructure for the implementation of SAFs at the Airport (Table 9).

From the perspective of the Applicant, all aircraft emissions fall under Scope 3[14], indirect emissions, for carbon accounting purposes. They are outside the Applicant's direct control but will be influenced by investments into efficient airside infrastructure design, delivery, services such as Fixed Electrical Ground Power (provided by the Applicant), and how aircraft operate at the airport (influenced by airlines, the Air Navigation Service Provider, and the Applicant).

Mitigation measures identified within the Dublin Airport CRS[2] to reduce aviation emissions, fall into four categories:

- The use of SAFs. Any SAF mandate will be binding on the fuel supply chain rather than on the airport, although the airport operator must enable and facilitate the use of SAFs;
- The collaboration of the Applicant with their respective stakeholder groups to set pathways to reach net zero emissions by 2050. The implementation of this measure remains the responsibility of the airport operator;
- The introduction of Zero Emission Aircraft, such as electric, green hydrogen, or hybrid models. The introduction and use of such aircraft is beyond the responsibility of the airport operator, but when the technology becomes available in the future, the operator will enable their changing and/ or refuelling; and
- Carbon pricing via CORSIA. Market-based mechanism such as EU ETS and CORSIA act as a backstop for reducing aviation emissions, participating in these schemes will be the duty of the airline operators.

Surface Access Journeys

Surface access journeys are estimated to contribute approximately 7% of the GHG emissions resulting from the Proposed Order in 2026. As the second highest contributor to the overall GHG emissions of the Proposed Order, it is important that these emissions are mitigated in line with net zero targets.

It is recognised that the Applicant has some influence over surface access emissions e.g., through facilitating modal shift through access to public or active transport. However, surface access emissions are predominantly managed at a national level though policy. This includes emissions from transportation associated with journeys made by passengers, staff, and freight to and from the airport. Developments such as Metrolink[15], creating a rail line from the Airport to connect with the Greater Dublin area, will contribute to the modal shift and decarbonisation required for surface access journeys.

[12] Regulation - EU - 2023/2405 - EN - EUR-Lex (europa.eu)
[13] Regulation - EU - 2023/2405 - EN - EUR-Lex (europa.eu) paragraph 33
[14]Scope 3 emissions are defined within the Greenhouse Gas Protocol corporate accounting and reporting standard as indirect GHG emissions that occur as "*a consequence of the activities of the company but occur from sources not owned or controlled by the company*".
[15] Transport Infrastructure Ireland. (n.d.). *Metro Link*. Available at: https://www.tii.ie/public-transport/projects-and-improvements/metrolink/

Measures to mitigate the additional emissions attributed to increased surface access journeys under the Proposed Order are shown in Table 10 below.

Table 10: Surface Access Journeys mitigation measures

Source	Description/ Impact	Date
Passenger and staff travel	Improve passenger and staff mobility by enhancing access to public transport, cycling and walking.	Ongoing
Passenger and staff travel	Transition to biodiesel or electric buses following trials/feasibility.	Ongoing
Passenger and staff travel	Install more electric vehicle (EV) chargers across the airport for the Applicant, tenant and passenger vehicles.	Ongoing

The EU Clean Vehicle Directive[16] sets out a timetable to transition to lower-carbon modes of transport, but there remain several areas where the airport operator can act to support and incentivise this policy.

Ireland's Climate Action Plan 2025[17] contains several specific measures to decarbonise various modes of transport to meet Ireland's 2030 transport abatement targets (emissions reduction of 4.1% between 2021-2025 and 9.4% between 2026-2030). The airport operator acknowledges it has a role to play in enabling and facilitating the shift to more sustainable transport options.

Airport Operations

Airport Operations are estimated to contribute less than 1% of the GHG emissions resulting from the Proposed Order in 2026.

The operation of the airport's buildings, associated assets, vehicles (including third parties), and infrastructure fall under the Applicant's Scope 1 and 2 emissions. The Applicant is considered to have the most control over these parts of the airport's overall carbon footprint.

Measures to mitigate the additional emissions attributed to increased airport operations under the Proposed Order are shown in Table 11 below.

[16] EU Clean Vehicle Directive (2019): Available at: https://eur-lex.europa.eu/eli/dir/2019/1161/oj
[17] Government of Ireland (2025). Climate Action Plan 2025. Available at: https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/climate-action-plan-2025/

Table 11: Airport Operations mitigation measures

Source	Description/ Impact	Date
Energy use	Utilise an extensive lighting control system across estate, incorporating: a. Occupancy sensing; b. Time control; and c. Daylight sensing.	Ongoing
	Install LED lighting across the Applicant's estate, specifically: a. All campus street and car park lighting; b. Apron 7 floodlighting; and c. Aerodrome Ground Lighting (AGL) Improvement Programme.	Ongoing
	Expand Fixed Electrical Ground Power to all remaining airfields contact and remote stands.	Ongoing
Energy procurement	Continue to purchase 100% renewable electricity through Renewable Energy Guarantees of Origin backed supply contracts.	Ongoing
Low/ zero emissions on-site fleet	Transition towards the utilisation of low/zero emissions on-site fleet vehicles, measures include: 1. All new and replacement GSE vehicles to be electric powered; 2. Compete transition of light vehicle fleet and continue the transition of heavy vehicle fleet to LEVs; and 3. Replace on-site diesel use with hydrotreated vegetable oil (HVO), with additional exploration for the on-site use of biogas and/or hydrogen.	Ongoing
Low/ zero emissions infrastructure	Provision of infrastructure to facilitate the use of zero emission airside equipment, including: a. The provision of electrical charging facilities within the GSE parking area for GSE charging; b. Utilisation of battery power storage across some services (once technology is proven).	Ongoing
Waste and resources	Integration of mitigation measures into the design to minimize effects relating to waste and resources.	Ongoing

As noted, the Applicant has some control when it comes to emission reductions from the operation of vehicles owned and/or operated by the Applicant or operated by third parties. The EU Clean Vehicle Directive[16] sets out a timetable to transition to lower-carbon modes of transport, but there remain several areas where the airport operator can act to support and incentivise this policy under the Proposed Order (Table 11).

Furthermore, Ireland's Climate Action Plan 2025[17] includes an ambition to crosscut a range of energy efficiency measures to reduce emissions across industry and lower overall energy demand across the built environment. For the purposes of this plan, airport operations cover activities by both the Applicant, as airport operator and third parties such as tenants. Activity within airport operations includes:

- Consumption of natural gas and other fuels;
- Operation of airport and third-party vehicles, whether Internal Combustion Engine (ICE) or EV;
- Consumption of grid electricity, and associated transmission and distribution losses;
- Aircraft engine tests;
- Fugitive emissions from use of refrigerants and de-icer;
- Supply of water and treatment of wastewater;

- Disposal of waste; and
- Business travel.

Effective GHG management of airport operations is vital in enabling the airport to achieve its direct emissions reduction targets. Table 11 summarises measures to address emissions from airport operations.

6. Review

Delivery of the Proposed Order CRS will be periodically monitored and reviewed by the Applicant as the Proposed Order is delivered. This review will consider any updated-on climate policy and legislation that may impact delivery of the project.

Appendix A Legislation, Policy & Guidance

A.1 International Legislation & Policy

Paris Agreement

The Paris Agreement18 is a legally binding international treaty within the United Nations Framework Convention on Climate Change (UNFCCC) dealing with GHG emissions mitigation, adaptation and finance starting in the year 2020. It requires all signatories to declare their Nationally Determined Contributions (NDC) towards balancing anthropogenic sources and sinks of GHGs in the second half of this century with the objective of keeping global warming to well below 2°C and to pursue efforts to limit global warming to 1.5°C. On the 11 December 2020 the European Council endorsed a new and more ambitious EU climate target for 2030 applicable to the EU and its 27 Member States of “a net domestic reduction of at least 55% in GHG emissions by 2030 compared to 1990” and submitted it to the UNFCCC Secretariat as an updated and enhanced NDC.

Kyoto Protocol

The Kyoto Protocol19 enforces the UN Framework Convention on Climate Change by requiring industrialised countries and transition economies to meet specific GHG emission reduction targets. It mandates that only developed nations are legally bound to reduce emissions, reflecting the principle of "*common but differentiated responsibility*", which holds these countries more accountable due to their historical contributions to high atmospheric GHG levels. Annex B of the Protocol outlines binding reduction targets for 37 industrialised nations and the EU.

European Climate Law

The European Climate Law20 writes into law the goal set out in the European Green Deal for Europe's economy and society to become climate-neutral by 2050. The law also sets the intermediate target of reducing net GHG emissions by at least 55% by 2030, compared to 1990 levels, and a 90% reduction in net GHG emissions by 2040.

The European Green Deal

The European Green Deal21 is a package of policy initiatives, which aims to set the EU on the path to a green transition, with the ultimate goal of reaching climate neutrality by 2050. It supports the transformation of the EU into a fair and prosperous society with a modern and competitive economy.

EU Emissions Trading Scheme, Directive 2003/87/EC, as amended 2008 and 2018

This Directive22 establishes a scheme for GHG emission allowance trading within the Community in order to encourage and incentivise reductions of GHG emissions in a cost-effective and economically efficient manner.

[18] The Paris Agreement: https://unfccc.int/process-and-meetings/the-paris-agreement
[19] United Nations. What is the Kyoto Protocol?. Available at: https://unfccc.int/kyoto_protocol#:~:text=In%20short%2C%20the%20Kyoto%20Protocol,accordance%20with%20agreed%20individual%20targets [Accessed on: 20/05/2026].
[20] European Climate Law: https://climate.ec.europa.eu/eu-action/european-climate-law_en#:~:text=The%20European%20Climate%20Law%20writes.2030%2C%20compared%20to%201990%20levels .
[21] European Green Deal. https://www.consilium.europa.eu/en/policies/green-deal/#:~:text=The%20European%20Green%20Deal%20is%20a%20package%20of%20policy%20initiatives,a%20modern%20and%20competitive%20economy .
[22] EU Emissions Trading Scheme, Directive 2003/87/EC: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32003L0087

The Directive was amended23 in 2008 to include aviation activities in the scheme for GHG emission allowance trading within the Community, and again in 201824 to enhance cost-effective emission reductions and low-carbon investments.

Directive 2023/95825 amends Directive 2003/87/EC to strengthen emissions reduction measures in the aviation sector, targeting both intra-EU and extra-EU flights. Key changes include:

- Phasing Out Free Allowances: Free emissions allowances for aviation have been gradually phased out from 2024, with full auctioning of allowances mandated since January 2026. This shift was intended to increase the cost of carbon for airlines, incentivising emissions reductions.
- Sustainable Aviation Fuels (SAF) Incentive: To encourage the uptake of SAF, the Directive introduces SAF allowances, allowing operators to cover part of the cost difference between SAF and conventional fuels. This mechanism aims to make SAF adoption financially feasible.
- Extra-EU Flight Emissions through Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) Compliance: For flights to and from non-EU countries participating in the Carbon CORSIA, EU airlines will adhere to CORSIA's offsetting requirements from 2022 to 2027. Once aviation emissions exceed 85% of 2019 levels, airlines will need to offset these excess emissions, supporting projects that reduce emissions in CORSIA-participating countries.
- Non-CO2 emissions reporting: the revised EU ETS Monitoring and Reporting Regulation introduces monitoring, reporting, and verification (MRV) requirements for non-CO_2 aviation effects, including persistent contrails, NO_x, and soot particles, which together account for about two-thirds of aviation's total climate impact.

Directive 2023/95926 reforms the EU Emissions Trading Scheme (ETS) to enhance emissions reduction targets and expand the scope to new sectors. Key provisions include:

- Increased Emissions Reduction Target: The Directive raises the 2030 emissions reduction goal for sectors under the EU ETS to 62%, up from 43%, intensifying the EU's climate ambition.
- Stricter Allowance Cap and Market Stability: The annual cap on available emissions allowances is further lowered, and the Market Stability Reserve is bolstered to limit allowance supply. These changes aim to drive up the carbon price, encouraging industries to cut emissions.
- Revised Free Allocation Rules and Carbon Leakage Protections: The Directive introduces targeted changes to free allocation of allowances, prioritising sectors most at risk of carbon leakage. To qualify, installations must now meet requirements like conducting energy audits. Free allocation will also be phased out for sectors covered by the Carbon Border Adjustment Mechanism (CBAM) to align with the CBAM's gradual rollout.
- Additional Funds for Low-Carbon Innovation and Modernisation: Additional allowances will be directed to the Innovation and Modernisation Funds to help finance low-carbon technologies and assist lower-income Member States.
- Extended EU ETS Coverage:
  - Maritime Sector Integration: The EU ETS will now cover maritime emissions, with phased-in obligations for shipping companies to surrender allowances for 40% of emissions in 2024, 70% in 2025, and 100% by 2026.
  - New ETS (ETS II): ETS II establishes a separate trading system for Buildings, Road Transport, and additional sectors not previously included, such as small industries and specific industrial processes.

[23] EU Directive 2008/101/EC Amending Directive 2003/87/EC: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:008:0003:0021:en:PDF#:~:text=The%20objective%20of%20the%20amendments,activities%20in%20the%20Community%20scheme.
[24] EU Directive 2018/410 amending Directive 2003/87/EC: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018L0410&qid=1688393817019
[25] Directive (EU) 2023/958: https://eur-lex.europa.eu/eli/dir/2023/958/oj
[26] Directive (EU) 2023/959: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2023.130.01.0134.01.ENG

A.2 Market-Based Mechanisms

The EU ETS27, administered by the European Union, and CORSIA, managed by the International Civil Aviation Organization (ICAO) are, two key market-based mechanisms (MBM), used to manage and reduce aviation emissions and fundamental to the sustainable growth of the aviation sector.

MBM are defined as28: economic tools designed to incentivise emissions cuts by creating financial value associated with reducing or offsetting emissions. These mechanisms put a price on GHG emissions, encouraging emitters to lower their emissions or pay for allowances or offsets.

These instruments are designed to address the climate impact of aviation by reducing carbon emissions. They go beyond the reductions offered by operational improvements, technological measures or SAF and are instrumental to reach the ambitious goals set for the aviation sector. The underlying concept of an MBM is to internalise the external cost of carbon emissions, thus incentivising investments by the aviation sector to reduce its carbon footprint.

The EU ETS applies for intra-European flights (including departing flights to the United Kingdom and Switzerland), while CORSIA applies to extra-European flights to and from third countries participating in CORSIA from 2022 to 2027. The division of responsibilities for managing aviation emissions between the EU ETS and CORSIA is referred to as the 'clean cut'. The European Council and Parliament agreed that after the 42nd Assembly of the ICAO, in 2025, the European Commission will assess if the implementation of CORSIA is sufficient to reduce aviation emissions in light of the objective of the Paris Agreement. If CORSIA delivers on its objectives, the Commission will make a proposal to the Council and Parliament to extend the 'clean cut'. If CORSIA is not sufficient, the Commission will make a proposal to extend the scope of ETS to all flights departing from the European Economic Area (EEA).

European Union Emission Trading System

The aim of the EU ETS is to help EU Member States achieve their commitments to limit or reduce GHG emissions in a cost-effective way by allowing participating installations to buy or sell tradeable emissions allowances. This means savings are made where it is most financially viable to do so.

CO2 emissions from aviation have been included in the EU Emissions Trading System since 2012. Under the EU ETS all airlines operating within European Economic Area (both European and non-European airlines) are required to monitor, report and verify their emissions from qualifying flights within Europe, and to surrender allowances against those emissions. Airlines used to receive a free allocation of tradeable allowances covering a certain level of permitted emissions from their flights each year, this free allocation was subject to an annual reduction factor, and has now been phased out entirely29. Since January 2026, airlines no longer receive any free allocation, they must now purchase allowances for 100% of their covered emissions.

Additionally, a European Commission decision adopted in November 202330 sets the 2024 emissions cap for aircraft operators at just under 28.9 million tCO2. This cap declined sharply between 2024 and 2026, dropping to 24.9 million tCO2. This decrease is due to the 4.3% annual reduction that applies to the 2024–2027 period. This Linear Reduction Factor is set to increase to 4.4% annual reduction from 2028 onwards to align with net zero targets

Aviation emissions from all intra-EU flights, and therefore those covered by EU ETS, are considered 'traded' emissions.

[27] European Union (EU), (2018); Directive (EU) 2018/410 of the European Parliament and of the Council of 14 March 2018 amending Directive 2003/87/EC to enhance cost-effective emission reductions and low-carbon investments, and Decision (EU) 2015/1814 (Text with EEA relevance).
[28] C2ES. MARKET MECHANISMS: OPTIONS FOR CLIMATE POLICY: https://www.c2es.org/wp-content/uploads/2020/04/market-mechanisms-options-climate-policy.pdf
[29] European Commission, (2022); European Green Deal: new rules agreed on applying the EU emissions trading system in the aviation sector. Available at: https://ec.europa.eu/commission/presscorner/detail/en/ip_22_7609 (Accessed 09/06/2026).
[30] European Commission, (2023); Commission Decision (EU) 2023/2440 of 27 October 2023 on the Union-wide total quantity of allowances to be allocated in respect of aircraft operators under the EU Emissions Trading System for 2024. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=OJ:L_202302440

Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)

CORSIA31 is a global market-based measure scheme to address CO2 emissions from international aviation. All EU member states are a part of CORSIA, which offers a harmonised way to reduce emissions from international aviation, minimising market distortion, while respecting the special circumstances and respective capabilities of ICAO Member States.

Emissions not falling under the EU ETS (non-traded emissions) will be managed through CORSIA, where states have signed up to CORSIA32, which aims for no net increase in aircraft CO2 baseline emissions. Ireland along with all other EU Member States, opted to participate in CORSIA from the pilot phase which commenced in 2021. Originally, the CORSIA baseline – from which airline offsetting requirements under the agreement are calculated – was agreed to be an average of 2019 and 2020 emissions. However, in 2020 the Covid-19 pandemic caused a precipitous drop in demand for air transport to less than half that of 2019. As a result, the CORSIA baseline would have been significantly reduced, imposing an unexpected and severe economic burden on an already extremely weakened airline industry and contravening the spirit of the CORSIA framework agreed in 2016. Therefore, in June 2020, the ICAO Council agreed to use 2019 emissions only as CORSIA's baseline for the period of 2021-2023. Most recently, at its 41st Assembly, ICAO set 85% of 2019 emissions as CORSIA's baseline from 2024 until the end of the scheme in 2035: a significantly more ambitious target than originally planned, which the industry supported.

A.3 Policy

EU Fit for 55

On July 14 2021, the European Commission adopted the "Fit for 55"33 package as part of the European Green Deal, which aims to strengthen the EU's position as a global climate leader. The package aims to modernise existing legislation in line with the EU's 2030 climate target and introduce new policy measures to help bring about the transformative changes needed in the economy, society and industry to achieve climate neutrality by 2050 and to support it, reduce net emissions by at least 55% (compared to 1990) by 2030.

Under the Fit for 55 policy, the ReFuelEU Aviation Initiative will oblige fuel suppliers to blend increasing levels of sustainable aviation fuels in jet fuel taken on-board at EU airports, including synthetic low carbon fuels, known as e-fuels. This sets targets for sustainable aviation fuels (SAF) blending from 2025 onwards to reduce the fuel emissions, with 2% minimum share by 2025, 20% by 2035 and 70% of SAFs are expected to be implemented by 2050.

Single European Sky Initiative (SES)

The EU SES34 policy's main objective is to reform air traffic management in Europe, in order to cope with sustained air traffic growth and operations under the safest, most cost- and flight-efficient and environmentally friendly conditions. Doing so requires de-fragmenting the European airspace, reducing delays, increasing safety standards and flight efficiency to reduce the aviation environmental footprint, and reducing costs related to service provision.

SESAR (Single European Sky Air Traffic Movement Research) is the technological pillar of SES. It aims to improve air traffic management performance by modernising and harmonising air traffic management systems through the definition, development, validation and deployment of innovative technological and operational air traffic management solutions.

[31] Carbon Offsetting and Reduction Scheme for International Aviation: https://www.icao.int/environmental-protection/CORSIA/Pages/default.aspx
[32] Fact sheet: CORSIA (iata.org) page 4
[33] Fit for 55: Delivering on the proposals: https://commission.europa.eu/strategy-and-policy/priorities-2019-2024/european-green-deal/delivering-european-green-deal/fit-55-delivering-proposals_en
[34] Single European Sky:https://transport.ec.europa.eu/transport-modes/air/single-european-sky_en

A.4 National Legislation and Policy

Climate Action and Low Carbon Development (Amendment) Act 2021

The Climate Action and Low Carbon Development (Amendment) Act 202135 supports Ireland's transition to Net Zero and achieving its goal of a climate neutral economy by no later than 2050. It established a legally binding framework with clear targets and commitments set into law, and ensures the necessary structures and processes are embedded on a statutory basis to ensure Ireland achieves its national, EU and international climate goals and obligations in the near and long term.

Ireland's Climate Action Plan 2025

The Climate Action Plan (CAP) 202536 is the third statutory annual update to be prepared under the Climate Action and Low Carbon Development (Amendment) Act 2021.

It builds on CAP 2024 by redefining and updating the measures and actions required to deliver the carbon budgets and sectoral emissions ceilings and should be read in conjunction with it. The Plan provides a roadmap for taking decisive action to halve Ireland's emissions by 2030 and achieve climate neutrality by no later than 2050, as committed to in the Climate Action and Low Carbon Development (Amendment) Act 2021. These national targets align with Ireland's obligations under EU and international treaties, most notably the Paris Agreement (2015) and the European Green Deal (2020).

The CAP 2024 plan implemented the carbon budgets and sectoral emissions ceilings and set out a roadmap for taking decisive action to halve Ireland's emissions by 2030 and reach net zero no later than 2050, as committed to in the Programme for Government. CAP 2025 builds on CAP 2024 by shifting decisively from broad planning to focused delivery, introducing a streamlined set of high-impact actions designed to accelerate emissions reductions across the economy. Overall, CAP25 narrows the focus to the interventions with the greatest near-term impact, tightening accountability and aligning delivery more closely with Ireland's legally binding carbon budgets.

Climate Action Framework for the Commercial Semi-State Sector

In 2022, the Irish Government approved the Climate Action Framework (the Framework) for the commercial semi-state (CSS) sector37, which applies to all CSS companies (including daa) and outlines a series of commitments for delivering on climate action objectives. These commitments, which are outlined below, reflect requirements set out in Ireland's Climate Action Plan 2025:

- Governance of climate action objectives.
- Emission measurement and reduction target.
- Emission valuation in investment appraisal.
- Circular economy and green procurement.
- Climate-related disclosures.

The Framework provides a means for CSS companies to demonstrate how they are meeting their obligations under the Climate Action and Low Carbon Development (Amendment) Act 2021 to operate in a manner consistent with Ireland's national climate ambitions.

[35]Climate Action & Low Carbon Development (Amendment) Act 2021 https://www.irishstatutebook.ie/eli/2021/act/32/section/15/enacted/en/html
[36] Ireland's Climate Action Plan 2025: https://www.gov.ie/en/department-of-climate-energy-and-the-environment/publications/climate-action-plan-2025/ [Accessed: 14/05/2026]
[37] Climate Action Framework for the Commercial Semi-State Sector to address climate action objectives (August 2022): https://www.gov.ie/en/press-release/bd704-government-approves-climate-action-framework-for-the-commercial-semi-state-sector/

Ireland State Action Plan on the Reduction of CO_2 Emissions from Aviation (2025)

Ireland's State Action Plan on the Reduction38 of CO_2 Emissions from Aviation (2025) sets out the national framework through which Ireland will contribute to reducing GHG emissions from the aviation sector in line with ICAO, EU and national climate objectives. The plan aligns with the ICAO "basket of measures," combining technological improvements, operational efficiencies, Sustainable Aviation Fuel (SAF) deployment, and market-based mechanisms. It also integrates the requirements of the EU Fit for 55 package, including ReFuelEU Aviation and the strengthened EU Emissions Trading System (ETS), which together form the regulate aviation decarbonisation across Europe.

The plan outlines Ireland's expected emissions trajectory under various scenarios and identifies the mitigation potential of each measure. An emphasis is placed on the role of SAF, with Ireland recognising support is needed for the development of a domestic SAF supply chain and to implement the mandatory SAF blending levels required under EU law. Fleet modernisation by Irish-based airlines, improvements in air traffic management, and airport-level energy efficiency initiatives are also highlighted as key contributors to emissions reduction. These include electrification of ground operations, enhanced airport energy management, and participation in the EU's Single European Sky ATM modernisation programme.

In addition to EU-wide measures, the plan details national actions undertaken by Irish aviation stakeholders, including airports, airlines, and regulatory bodies. These actions focus on improving operational performance, reducing ground-based emissions, and supporting research and innovation in low-carbon aviation technologies. Ireland also reaffirms its participation in ICAO's CORSIA, which provides a global market-based mechanism to address residual emissions from international flights.

Overall, the 2025 Action Plan demonstrates Ireland's commitment to a coordinated, multi-layered approach to aviation decarbonisation. It recognises that while technological and operational improvements will deliver incremental gains, the long-term transition to low-carbon aviation will rely heavily on the scaling of SAF and the continued evolution of EU and global climate policy. The plan provides a structured pathway for monitoring progress and updating measures as new technologies and regulatory requirements emerge.

Dublin Airport Local Area Plan 2020

The Local Area Plan (LAP)39, published by Fingal County Council, sets out the main challenges and opportunities faced by the airport over the plan period. Within Chapter 5: Transition to a Low Carbon Economy, the LAP highlights the importance of the role of International Civil Aviation Organisations (ICAO) and the Carbon Offset and Reduction Scheme for International Aviation (CORSIA), among other key policy documents, in addressing carbon emissions. The LAP "*seeks to pursue climate mitigation in line with global and national targets and support the transition towards a low carbon economy by seeking to reduce CO2 emissions at the Airport*".

Objective CA01 in the LAP states: "*Support relevant provisions contained in the Fingal County Council Climate Change Action Plan 2019-2024, the National Climate Action Plan 2019 and any subsequent plan(s), National Climate Change Adaptation Framework 2018 and any subsequent plan(s) and the National Mitigation Plan 2017 and any subsequent plan(s)".*

Objective CA02 in the LAP states "*Major applications for aviation related expansion at Dublin Airport shall be supported by a carbon reduction strategy to include mitigation measures for implementation as part of development proposals."*

Objective CA03 in the LAP states "*Requires that all new developments at the Airport incorporate design solutions aimed at reducing carbon emissions, including the incorporation of renewable energy and energy saving technologies where practicable, including the use of district heating/cooling systems*."

[38] Ireland State Action Plan on the Reduction of CO_2 Emissions from Aviation (2025). Available at: https://www.ecac-ceac.org/images/activities/environment/Ireland_State_Action_Plan_Reduction_CO2_Emissions_2025.pdf [Accessed on: 20/05/2026].
[39] Fingal County Council (2020). Dublin Airport Local Area Plan 2020. Available at: https://www.fingal.ie/dublin-airport-local-area-plan-2020 [Accessed on: 09/06/2026].

Fingal County Development Plan 2023-2029

The Fingal Development Plan 2023-2029[40] outlines a comprehensive climate action strategy aimed at fostering sustainable growth in the county. It promotes compact, mixed-use developments and encourages the adoption of sustainable transport methods such as cycling, walking, and public transit. The plan emphasises using low-impact construction materials that can store carbon, limiting development in areas prone to flooding or coastal erosion, and preserving natural landscapes and biodiversity.

Climate action is a core theme throughout the plan, aligning with the National Planning Framework, the Climate Change Action Plan, and relevant national and European legislation. Key climate action policies include:

- Policy CAP1 – National Climate Action Policy: Support the implementation of national climate objectives, including the Climate Action Plan and Climate Plan for Ireland.
- Objective CAO1 – Climate Action Legislation: Ensure the plan adapts to any new or amended climate action legislation.
- Objective CAO2 – Fingal County Council Climate Change Action Plan: Implement the council's Climate Change Action Plan in collaboration with partners such as the Dublin Metropolitan Climate Action Regional Office (CARO) and Codema.
- Objective CAO3 – Quantification of GHGs: Work with the Eastern and Midland Regional Assembly (EMRA) to establish methods for quantifying GHG impacts of different spatial planning policies.
- Policy CAP2 – Mitigation and Adaptation: Prioritise both mitigation and adaptation measures to address climate change, following best practices and available guidance.

The Fingal Development Plan places a strong focus on reducing emissions by promoting sustainable transport and smart travel for access to and from Dublin Airport. Key policies supporting this goal include:

- Objective DAO2 – Safeguarding Dublin Airport's Needs: Protect the current and future operational, safety, technical, and development needs of Dublin Airport, ensuring its growth aligns with the Dublin Airport Local Area Plan 2020 and subsequent updates, while balancing environmental and economic impacts on local communities and businesses.
- Policy DAP2 – Infrastructure Provision: Ensure that Dublin Airport is equipped with the necessary infrastructure and facilities to operate sustainably and develop further, while considering impacts on the environment, climate change, and local communities.
- Objective DAO4 – Aviation Infrastructure and Facilities: Support the provision of necessary infrastructure at Dublin Airport to allow for sustainable growth of the aviation sector, with careful consideration of the effects on surrounding residential areas, existing developments, and the environment, including climate.
- Policy DAP4 – Transitioning to a Low Carbon Economy: Ensure all developments at Dublin Airport comply with the Climate Action and Circular Economy Objectives outlined in the Dublin Airport Local Area Plan 2020, fostering a low-carbon and sustainable approach.

A.5 Guidance

Green Public Procurement Strategy and Action Plan 2024-2027

Ireland's Green Public Procurement Strategy and Action Plan 2024-2027 drives circular economy goals through sustainable public sector purchasing, enabling public bodies to use their purchasing power to promote goods, services, and projects with lower environmental impact. Green procurement practices help reduce GHG emissions, improve energy efficiency, support sustainable resource use, and protect air, water, and biodiversity, aligning with national and global sustainability targets.

The 2012 Green Tenders action plan set a foundation with 64 actions focusing on eight key sectors, such as construction, energy, and transport, establishing green procurement criteria across public sector projects. Expanding on this, the new strategy prioritises GPP criteria for buildings' design, construction, retrofitting, and

[40] Fingal County Council (2023). Fingal County Development Plan 2023-2029. Available at: https://www.fingal.ie/sites/default/files/2023-10/Fingal%20Development%20Plan%2030.08.23_V4_WEB.pdf [Accessed 09/06/2026].

management to deliver environmental and energy efficiency benefits while spurring industry innovation in green technologies.

With cement production contributing to 5% of Ireland's GHG emissions, the construction sector is a priority for decarbonisation. The Climate Action Plan emphasises reducing embodied carbon in construction, with specific measures such as:

- Encouraging alternative fuels in cement kilns.
- Prioritising longer-life, low-carbon cement in public works.
- Promoting alternative, performance-based materials and techniques.
- Expanding retrofitting and compact development initiatives.

A Cement and Construction Sector Decarbonisation Working Group was created by Department of Enterprise, Trade and Employment to advance actions that reduce embodied carbon, aiming for a 30% reduction by 2030. Starting in 2023, public bodies are expected to specify low-carbon construction methods and materials for public projects, which should be defined in initial project briefs. The Working Group will also provide recommendations for low-carbon standards in public procurement to support industry alignment with national decarbonisation goals.

Guidance on potential policies and coordinated approaches for the deployment of SAF (2022)

This guidance41 has been developed by the ICAO Committee on Aviation Environmental Protection based on various studies since 2016. The guidance includes assessments of existing policy instruments, identification of potential policies and general recommendations to facilitate their implementation, and techno-economic analysis of policy options to foster the deployment of sustainable aviation fuel ("SAF")42. The guidance summarises a subset of potential policies and coordinated approaches for the deployment of SAF. Ireland is a member of ICAO which is an internationally recognised United Nations agency. This assessment relied on ICAO's guidance to inform aircraft emissions specifications, carbon offsets, anticipated improvements in aircraft technology efficiency, and the integration of SAF.

Sustainable Energy Authority of Ireland

The SEAI is a government agency dedicated to promoting and supporting the development of sustainable energy in Ireland. SEAI provides conversion factors for specific energy use, which were utilised in this assessment where applicable.

UK DEFRA / DESNZ Guidance

The UK Department for Environment, Food and Rural Affairs (DEFRA) and Department for Energy Security and Net Zero (DESNZ) GHG Reporting: Conversion Factors 202543 provides a comprehensive set of factors for converting various activities and emissions into equivalent GHG emissions. These conversion factors allow organisations to calculate and report their GHG emissions accurately and consistently, covering sectors such as energy, transport, waste management, and agriculture. The document includes updated emission factors for different fuels (including aviation), energy use and waste disposal methods, enabling businesses and policymakers to assess their environmental impact and develop effective strategies for reducing GHG emissions.

This UK guidance has been used in the absence of relevant GHG emission factor data being available in Ireland. Furthermore, The DEFRA/DESNZ Conversion Factors are appropriate to use in Ireland in the absence of Irish-specific emission factors because they provide a standardised and widely accepted framework for calculating and reporting GHG emissions, ensuring consistency and comparability across different sectors and allowing for a meaningful assessment of environmental impact.

[41] Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) 2016: https://www.icao.int/environmental-protection/Documents/SAF/Guidance%20on%20SAF%20policies%20-%20Version%201.pdf
[42] Sustainable Aviation Fuel is defined as alternative aviation fuel with similar properties to conventional jet fuel, but with a smaller carbon footprint.
[43] DEFRA (2026). UK Government GHG Conversion Factors for Company Reporting, Department for Environment, Food and Rural Affairs and Department of Business, Energy and Industrial Strategy. Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2025 [Accessed 09/06/2026].

Publicly Available Standard (PAS) 2080:2023 Carbon Management in Buildings and Infrastructure

PAS 2080:202344 provides guidance on how to manage carbon emissions and promote sustainability in infrastructure projects. The standard outlines a framework for the management of GHG emissions throughout the project lifecycle, from planning and design to construction, operation and end of life.

EU Commission Notice (2021/C 373/01)

The EU Commission Guidance (2021/C 373/01) provides technical guidance on the climate proofing of infrastructure covering the period 2021-2027. 'Climate proofing' is defined within the guidance notice as "a process that integrates climate change mitigation and adaptation measures into the development of infrastructure projects".

Climate change mitigation (i.e. GHG emissions reduction) and adaptation (i.e. adapting to projected changes in climate) form the two pillars of climate proofing described within the guidance notice.

[44] British Standards Institute (BSI) (2023). Carbon management in buildings and infrastructure.

Abbreviations

Abbreviation	Meaning
CBAM	Carbon Border Adjustment Mechanism
CCD	Climb, Cruise and Descent
CEMP	Construction and Environmental Management Plan
CHP	Combined Heat and Power
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
CRS	Carbon Reduction Strategy
daa	Dublin Airport Authority PLC
EV	Electric Vehicle
FCC	Fingal County Council
FSC	Forest Stewardship Council
GHG	Greenhouse Gas
GSE	Ground Support Equipment
HVO	Hydrotreated Vegetable Oil
LEED	Leadership in Energy and Environmental Design
LTO	Landing and Take Off Cycle
mppa	Million Passengers per Annum
MWp	Mega Watt Peak
OA	Operational Application
PEFC	Programme for the Endorsement of Forest Certification
SAF	Sustainable Aviation Fuel
SEAI	Sustainable Energy Authority of Ireland