



Operational environmental performance of Irish aviation entities (H1 2026)

Table of contents

1.	Introduction	3
1.1.	Executive summary	3
1.2.	Purpose.....	3
1.3.	Regulatory context	3
1.4.	Operational context	4
1.5.	Decarbonisation strategy	4
1.6.	Performance indicators	4
2.	Performance in H1 2026.....	6
2.1.	Network / en-route	6
2.2.	Terminal airspace	7
2.3.	Airport manoeuvring area	9

1. Introduction

1.1. Executive summary

This report presents the IAA's first periodic environmental performance overview for aviation organisations in Ireland, showing that aviation activity (157,515 flights) and associated CO₂ emissions (1.7 million tonnes) increased in H1 2026. Airspace efficiency improved, with Ireland's KEA performance at 1.53% in H1 2026 and AirNav Ireland ranking 2nd best in Europe. Terminal-airspace performance is mixed: overall CDO performance improved to 55.1%, above the European average, but Irish-based/ operator-linked CDO performance fell, with significant variation between airlines at Irish airports. Airport surface performance improved slightly at Dublin and Cork for both departure and arrival taxi times.

1.2. Purpose

This publication provides a periodic overview of the operational environmental performance of regulated aviation entities and others in Ireland, prepared and published by the Irish Aviation Authority (IAA) in the exercise of its statutory regulatory functions. The report is designed to:

- Improve transparency and awareness of operational environmental performance
- Support continuous improvement by regulated and other entities
- Provide a clear, consistent narrative alongside existing IAA regulatory and related reporting
- Complement statutory EU reporting under the Single European Sky performance scheme

Unless otherwise stated, data is presented at system or entity level, using European-standard methodologies, where possible, to support comparability. The data presented is publicly available.

This report has been developed to support the delivery of the IAA's strategy (2026-2028) and its sustainability strategic priority. The report will evolve in response to feedback, analytical improvements and regulatory changes.

This report is published for information purposes and does not replace statutory or regulatory reporting requirements.

1.3. Regulatory context

This report presents a snapshot of operational environmental performance across air navigation services, aircraft operations and airport-related activities in Ireland.

At European and national level, operational environmental performance falls within the Single European Sky (SES) performance scheme¹ for Reference Period 4 (2025–2029²). The scheme focuses primarily on airspace efficiency, measuring the extent to which flights operate close to the most direct (great circle) trajectory. These airspace efficiency metrics have recognised limitations and do not provide a complete view of environmental performance, but they remain the only agreed European-level operational environmental indicators.

¹ The Single European Sky performance and charging scheme provides a harmonised EU framework for regulating air navigation service providers through multi annual performance targets covering safety, environment, capacity and cost efficiency.

² Performance Plan for RP4, available at: <https://www.iaa.ie/commercial-aviation/economic-regulation/air-navigation-charges/performance-plan-for-rp4>

Airspace efficiency targets apply to AirNav Ireland, the national air navigation services provider. The IAA is responsible for national oversight and monitoring in respect of this target, in coordination with European bodies. The IAA also monitors a limited number of supporting performance indicators relevant to aircraft operators and airports, reported here for completeness.

There is no single metric or indicator that captures the full complexity and interdependencies of aviation's operational environmental performance. Some metrics measure direct environmental performance, while others act as proxies for operational efficiency or system performance. In recent years considerable efforts have been made to improve environmental monitoring and reporting³. This work will continue as preparations advance for the next regulatory reference period from 2030.

1.4. Operational context

Within the aviation sector aircraft operators, airport operators and air navigation service providers' performance is symbiotic. Each depends on and can affect the performance of the others. This interaction is further shaped by tactical factors such as weather, military airspace activation, strikes, technical failures and other unplanned disruption, as well as strategic factors such as regulatory objectives, investment decisions and geopolitical developments. Because individual aviation stakeholders rarely have sole control over the factors that influence their own operational environmental performance, this report uses a suite of indicators rather than relying on one measure.

1.5. Decarbonisation strategy

Improving operational efficiency is an important component of the aviation sector's decarbonisation strategy. Under the European aviation industry's Destination 2050 roadmap⁴, operational and efficiency improvements are expected to contribute to emissions reductions by enabling aircraft to fly more direct routes, minimise time spent taxiing and holding, and optimise climb and descent profiles. These measures can reduce fuel consumption in the short-term using existing aircraft and infrastructure, providing environmental benefits without requiring major technological changes. As a result, these are the focus of this operational environmental performance report.

Operational efficiencies alone are not expected to deliver the scale of emissions reductions required to achieve net zero aviation by 2050. As recognised in the Destination 2050 roadmap, the largest share of future emission reductions is expected to come from replacing older aircraft with more efficient models and from the widespread adoption of sustainable aviation fuels (SAF)⁵, supported over the longer term by new propulsion technologies. Progress against those wider decarbonisation milestones is outside the scope of this report for now.

1.6. Performance indicators

This report focuses on operational efficiency indicators, including airspace and airport performance measures that influence fuel consumption and CO₂ emissions. Monitoring these indicators provides insight into the extent to which aviation entities are reducing avoidable emissions in the short-term.

³ EUROCONTROL AVERIR working group reports, available at: <https://www.eurocontrol.int/publication/avenir-working-group-reports>

⁴ Destination 2050, available at: <https://www.destination2050.eu/roadmap/>

⁵ EASA, ReFuelEU Aviation Annual Technical Report 2026, available at: <https://www.easa.europa.eu/en/document-library/general-publications/refueleeu-aviation-annual-technical-report-2026>

Performance indicators are presented for three phases of operations: airport surface movements, terminal airspace and en-route airspace. Each phase measures a different aspect of operational efficiency and is influenced by combinations of stakeholders, procedures and external conditions. The common environmental link is fuel burn and therefore CO₂ emissions, although the extent to which each indicator directly effects emissions varies. The following metrics are used:

Network / en-route

- CO₂ emissions estimated for the entirety of each departing flight from Ireland
- Key Environmental Area (KEA) measuring airspace efficiency (regulatory target)

Terminal airspace

- Proportion of flights achieving Continuous Descent Operations (CDO)
- Arrival Sequencing and Metering Area (ASMA) additional time

Airport manoeuvring area

- Taxi in/out performance at selected airports

These indicators should be read together rather than as a single performance score. Some reflect areas where entities have direct operational influence, while others are affected by multiple factors outside of their control. For that reason, the report distinguishes between trends that indicate improved operational efficiency and areas where further analysis or stakeholder engagement is required. Links to the relevant data portals are provided for additional information.

2. Performance in H1 2026

2.1. Network / en-route

2.1.1. Traffic

In 2025 there were 316,784 flights to and from Irish airports⁶, corresponding to 43.5 million passengers⁷, the highest number of passengers recorded since the CSO series began in 2013. The most recent EUROCONTROL forecast expects annual traffic growth of 2.7% in Ireland in 2026 compared with 2025⁸. In the first half of 2026 however, traffic increased by 6.7% with 157,515 flights recorded⁹, indicating stronger early-year growth than the full-year forecast.

2.1.2. Climate change impacts

Aviation CO₂ emissions in 2025 were almost 3.5 million tonnes for departing flights. In H1 2026 aviation CO₂ emissions from departing flights from Ireland were up 7.0% on the same period from 2025¹⁰. Figure 1 shows CO₂ emissions (for full flight length) and the annual cycle of traffic, with summer peak and winter trough visible for each year plotted.

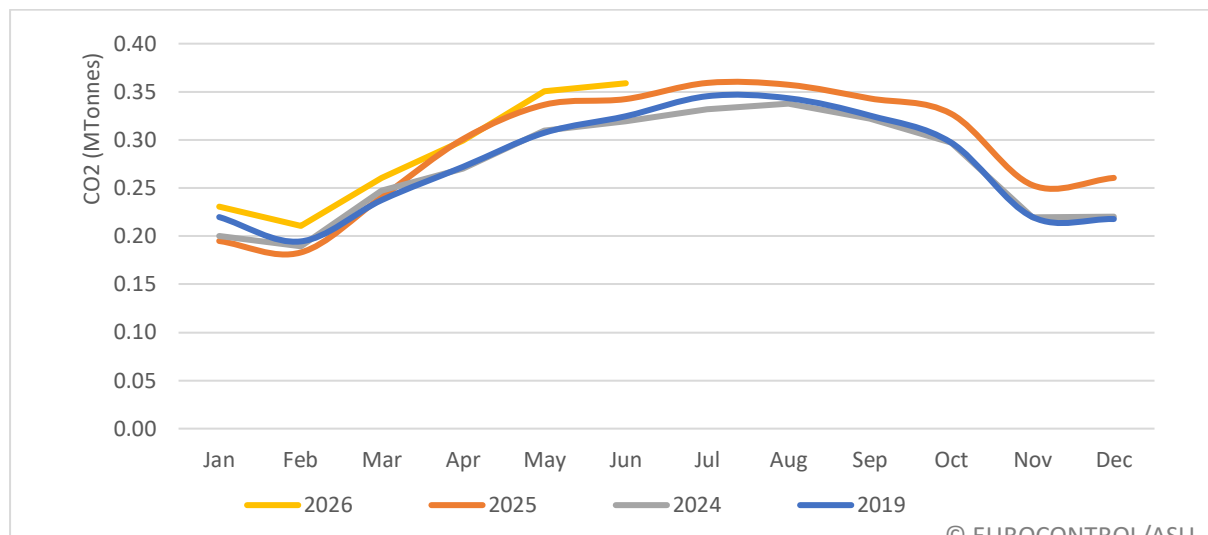


Figure 1 - CO₂ emissions from all commercial flights departing from Irish airports

Aviation CO₂ emissions for H1 2026 were the highest recorded since traffic recovered after the COVID pandemic, reaching 1.7 million tonnes. CO₂ emissions is not the only climate-relevant output from aircraft engines: burning jet fuel also produces water, nitrogen oxides (NO_x), sulphur oxides (SO_x), carbon monoxide (CO), soot / particulate matter, unburnt hydrocarbons and can lead to contrails and contrail-cirrus (depending on atmospheric conditions). Emissions also arise from refining and transporting fuel to Irish airports. Each of these have different atmospheric lifetimes and climate impacts; most contribute to warming, while some can have a short-term cooling impact depending on the conditions.

⁶ EUROCONTROL Daily traffic variation for States dashboard, available at: <https://www.eurocontrol.int/Economics/2025-DailyTrafficVariation-States.html>

⁷ CSO Aviation statistics quarter 4 and year 2025, available at: <https://www.cso.ie/en/releasesandpublications/ep/p-as/aviationstatisticsquarter4andyear2025/>

⁸ EUROCONTROL Forecast (2026-2032), available at: <https://www.eurocontrol.int/sites/default/files/2026-03/eurocontrol-seven-year-forecast-2026-2032-report.pdf>

⁹ EUROCONTROL Daily traffic variation for States dashboard, available at: <https://www.eurocontrol.int/Economics/DailyTrafficVariation-States.html>

¹⁰ EUROCONTROL CO₂ emissions dashboard, available at: <https://ansperformance.eu/efficiency/emissions/>

2.1.3. En-route airspace efficiency

The Key Environmental Area (KEA) indicator¹¹ measures the average additional distance flown by aircraft compared with the most direct route, expressed as a percentage. KEA captures the combined effect of airspace design, traffic flows, unit charges, weather, network constraints and operational decision-making. A lower KEA value indicates better environmental performance.

Year	2025	2026						
		Jan	Feb	Mar	Apr	May	Jun	YTD
Target	1.42%				1.40%			
Actual	1.63%	1.61%	1.68%	1.73%	1.50%	1.31%	1.46%	1.53%

Figure 3 - KEA performance against targets for Ireland

An overall target was set for the Union (2.75%) and was then apportioned to individual Member States by the Network Manager. KEA performance for Ireland, as currently measured by EUROCONTROL, has improved from 1.63% in 2025 to 1.53% in H1 2026.

AirNav Ireland currently ranks 2nd best across the European network. Their performance is still behind the national target (1.40% in 2026), which is likely linked to some factors largely beyond the control of AirNav Ireland. These include:

- Implementation of free route airspace in UK airspace
- Changes in airline flight-planning behaviour and traffic levels using North Atlantic airspace, driven by cost optimisation and achieving more efficient trajectories via oceanic routings
- Inclusion of Icelandic airspace within the EUROCONTROL measurement and reference area, with consequent methodological effects

2.2. Terminal airspace

2.2.1. Continuous Descent Operations (CDO)

A CDO describes how an aircraft descends from the top of cruise smoothly with minimal level flight, reducing fuel burn, CO₂ emissions and noise. Different methodologies exist for measuring CDO, but for this report the data relates to CDO from the top of descent as measured by EUROCONTROL. CDO performance provides insight into vertical flight efficiency during the arrival phase of a flight. A higher CDO value indicates better environmental performance.

A number of factors can influence CDO performance:

- Aircraft operator's procedures for how the pilot manages the aircraft
- The type of aircraft being flown
- The fleet mix of the aircraft operator
- The complexity of the airspace through which the aircraft descends
- How busy the airspace is
- Weather conditions and season
- The runway direction and the approach direction of the aircraft
- The air traffic control procedures and instructions in use.

¹¹ EUROCONTROL Horizontal en-route flight efficiency dashboard, available at: <https://ansperformance.eu/efficiency/hfe/>

Donegal (EIDL)	81%	74%	72%	73%	82%	76%
Kerry (EIKY)	82%	76%	76%	82%	70%	71%
Ireland West (EIKN)	79%	73%	72%	71%	70%	75%
Shannon (EINN)	60%	61%	62%	59%	59%	58%
Cork (EICK)	55%	51%	53%	51%	52%	50%
Dublin (EIDW)	39%	36%	35%	38%	38%	36%
	Jan	Feb	Mar	Apr	May	Jun

Figure 4 - CDO rate achieved at Irish aerodromes in H1 2026

CDO performance is monitored at Irish aerodromes¹². The average proportion of flights that achieved a CDO from the top of descent across the above airports was 41.6% in 2025, with H1 2026 showing a slight drop in performance to 40.9%. By comparison, CDO performance across the European aerodrome network was 34.0% in H1 2026.

Ireland's CDO performance is strongly influenced by operations at Dublin airport, which accounted for 63,000 descents out of a national total of 77,000 in H1 2026. Dublin's terminal airspace is more complex than that of other Irish airports and descending traffic is in part managed by a neighbouring Air Navigation Service Provider (ANSP).

AirNav Ireland provides an air traffic control tower service at Cork, Dublin and Shannon airports, with other providers in place at Donegal, Ireland West and Kerry, which each handle comparatively less scheduled traffic. The average CDO performance at towers where AirNav Ireland provides the service in H1 2026 was 39.6% - a drop compared to 40.5% in 2025. The average CDO performance at other Irish aerodromes with commercial scheduled services in H1 2026 was 70.4% - an improvement compared to 65.8% in 2025.

Notwithstanding the constraints at Dublin airport, there is variation between individual aircraft operators, where Ryanair (RUK) achieved a CDO rate of 58.4% in H1 2026, which is much better than the average of 37.2% for all other operators at Dublin airport.

Across Irish based / linked aircraft operators, CDO performance fell from 42.7% in 2025 to 39.3% in H1 2026. If Ryanair is excluded, the average CDO rate for Irish headquartered operators falls further to 34.9% in H1 2026. The Ryanair group remains the benchmark among Irish operators and performs above the European airline average, recording 44.1% compared with the European average of 34.5% in H1 2026.

¹² EUROCONTROL Vertical flight efficiency dashboard, available at: <https://ansperformance.eu/efficiency/vfe/>

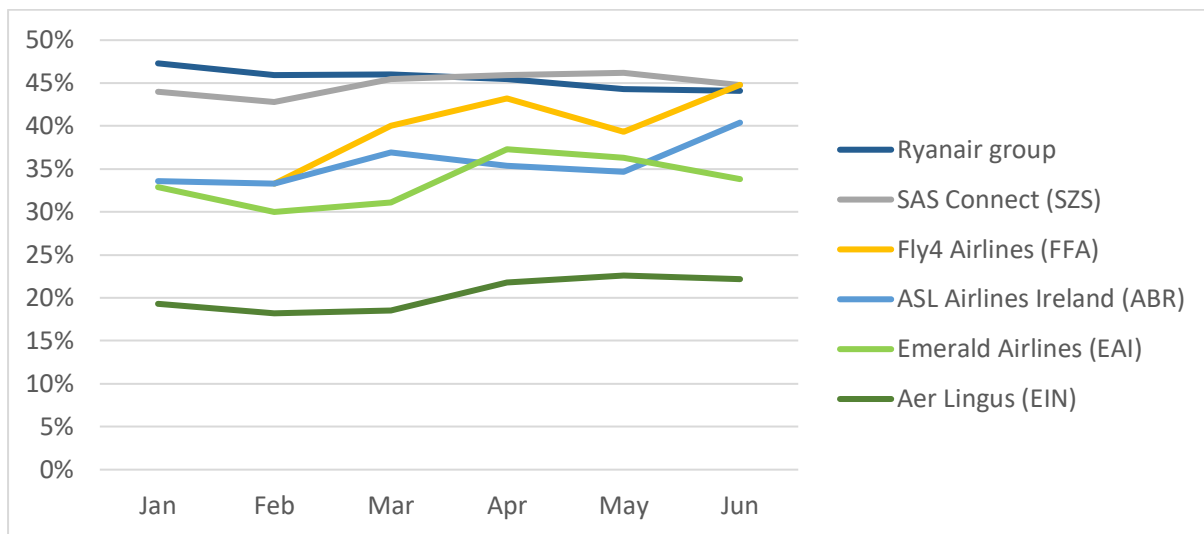


Figure 5 - CDO rate of Irish based/linked aircraft operators

2.2.2. Additional time

The metric 'Arrival Sequencing and Metering Area (ASMA) additional time' measures the extra time flown in terminal airspace compared with an optimal reference profile¹³. ASMA provides insight into terminal airspace efficiency, congestion, sequencing effects and associated environmental impacts at airport level. Performance can be impacted by similar factors to CDO.

In 2025 the European Network Manager requested that 'first wave' departures be prioritised to ensure on time performance and minimise delays which might otherwise grow throughout the day¹⁴. AirNav Ireland accommodated a request by Dublin airport and aircraft operators to change how early arrivals were managed in August 2025, whereby aircraft that arrived before their scheduled arrival time would be held to minimise their impact on early morning departures, until dual runway operations commenced.

Instances of significant holding arising on certain days were subsequently identified – potentially an unintended consequence of prioritising the 'first wave' departures. For example, 56 flights were held for 12+ minutes (above the ASMA reference value), from August to the end of 2025, out of a total 193 early arrivals. The IAA will continue to monitor early morning holding performance at Dublin airport.

2.3. Airport manoeuvring area

Taxi-in times from the runway to the aircraft stand¹⁵ and taxi-out times to the runway¹⁶ capture the efficiency of aircraft movements on the airport manoeuvring area (runways and taxiways)¹⁷. Extended taxi times cause additional fuel burn, CO₂ emissions and local air quality impacts, particularly in the vicinity of airports.

¹³ EUROCONTROL Terminal holdings (ASMA) dashboard, available at: <https://ansperformance.eu/efficiency/asma/>

¹⁴ EUROCONTROL Why prioritising first rotation is vital to keep delays down, available at: <https://www.eurocontrol.int/news/new-thinknetwork-video-why-prioritising-first-rotation-vital-keep-delays-down>

¹⁵ EUROCONTROL Taxi-in additional time dashboard, available at: <https://ansperformance.eu/efficiency/taxiin/>

¹⁶ EUROCONTROL Taxi-out additional time dashboard, available at: <https://ansperformance.eu/efficiency/taxiout/>

¹⁷ Multiple methodologies exist for estimating taxi times. For consistency with other performance indicators in this report the taxi time data used originates from the same EUROCONTROL data portal

Taxi performance reflects a combination of factors including:

- Airport infrastructure and layout
- Runway configuration and utilisation
- Air traffic control procedures
- Airline operational practices
- Traffic levels

Year (min/ departure)	Airport	2025	2026 H1
Departure taxi	Dublin (EIDW)	4.18	4.11
	Cork (EICK)	2.48	2.35
	Euro average	3.80	3.68
Arrival taxi	Dublin (EIDW)	2.06	1.90
	Cork (EICK)	0.97	0.80
	Euro average	1.74	1.76

Figure 6 - Taxi times for selected Irish airports

In H1 2026, average additional departure taxi time at Dublin airport improved slightly but remained above the European average, with Dublin ranked 75th out of 88 airports for length of additional departure taxi time. Cork airport's departure taxi time also improved slightly and ranked 12th out of 88 airports. Arrival taxi times improved at both Dublin and Cork in H1 2026