



Net Zero 2050: Operations & Infrastructure

Fact Sheet

Overview

The aviation industry's net-zero carbon emissions goal is focused on delivering maximum reduction in emissions at source, through the use of sustainable aviation fuels (SAF), innovative new propulsion technologies, and other efficiency improvements (such as improvements to air traffic navigation).

This factsheet looks at the potential for operations and infrastructure efficiency improvements to contribute to reducing CO₂ emissions and help meet the 2050 carbon goal. While the overall emission reductions from operations and infrastructure efficiency improvements are not by themselves sufficient to meet net-zero, these measures can often be implemented at scale faster than aircraft-level technologies (that are constrained by the rate of entry of aircraft into the fleet) and therefore their impact can be significant in the near term.

Historic trend

The aviation industry has a history of continuous improvement in efficiency. Until the Covid-19 pandemic, there was a steady improvement in the passenger load factor to a record average of over 82% in 2019. Operational efficiencies have resulted in a 55% improvement in fuel burn per passenger km since 1990. It remains the case, however, that some long-sought infrastructure improvements have not progressed as rapidly as originally envisaged.

In 2025, airlines recorded an energy efficiency improvement of just 0.3% on a measure that historically averages 2.0%. This deceleration was largely down to delays in the supply of new aircraft and engines and to related maintenance issues.

Aircraft operation improvements (airline and aircraft operator focus) include measures such as:

- Weight reduction
- Improvements in aerodynamics of in-service aircraft, and
- Use of systems to improve efficiency during the operation of aircraft.

Infrastructure improvements (air traffic management and to a lesser extent airport operations) include measures such as:

- Structural changes in air traffic management (ATM) operations, and
- Energy savings at the airport such as limitations on the use of auxiliary power units, single engine taxi, and reduced taxi times.

(For more in-depth information into potential operations and infrastructure improvements, see IATA's [Operations Roadmap](#))

Contribution to achieving Net Zero Carbon in 2050

