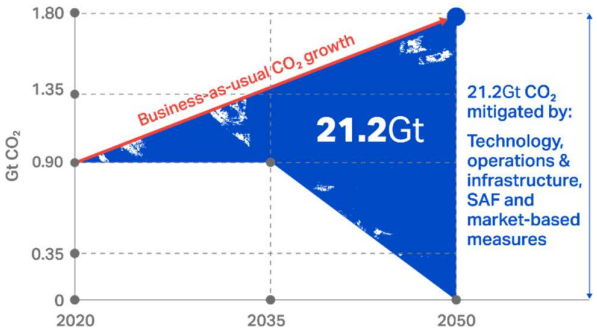
Net zero carbon 2050 resolution

Fact sheet

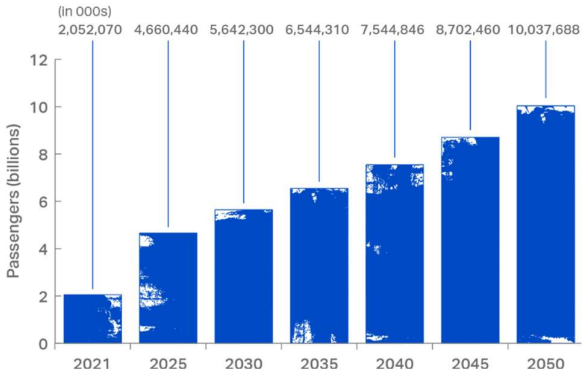
At the 77th IATA Annual General Meeting in Boston, USA, on 4 October 2021, a resolution was passed by IATA member airlines to achieve net-zero carbon emissions from their operations by 2050. This target supports the efforts of the Paris Agreement's temperature goal. Having agreed to a Long Term Aspirational Goal (LTAG) on climate at the 41st Assembly of the International Civil Aviation Organization (ICAO) in October 2022, governments now share the same target for aviation's decarbonization.

Net Zero: Aviation carbon emissions to be abated by 2050



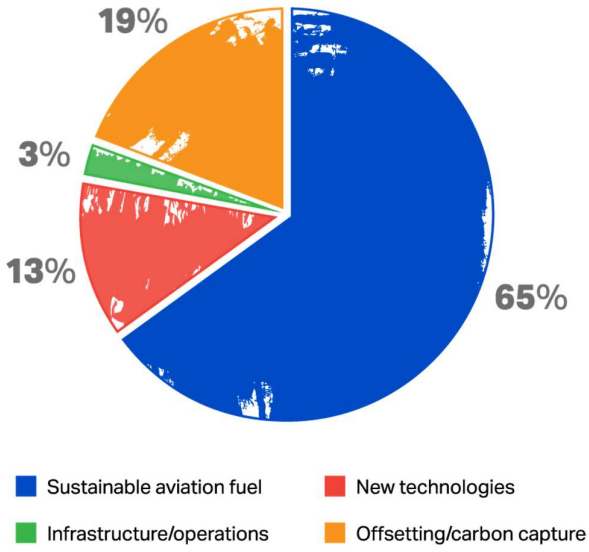
Current projections estimate that demand for individual air passenger journeys in 2050 could exceed 10 billion.

Forecasted evolution of air transport passenger traffic



The expected carbon emissions on a 'business as usual' trajectory over the 2021-2050 period is approximately 21.2 gigatons of CO2. Mitigating that amount of carbon will be an enormous technological challenge.

Contribution to achieving Net Zero Carbon in 2050



Success will require the coordinated combined efforts of the entire industry (airlines, airports, air navigation service providers, manufacturers) and significant government support.

The net-zero objective will be met through a combination of maximum elimination of emissions at source and the use of approved offsetting and carbon capture technologies. The key elements of the emissions reduction strategy are:

- The use of Sustainable Aviation Fuel (SAF), sourced from feedstocks that do not degrade the environment or compete with food or water
- Investment in new aircraft technology, including radical new aerodynamic and alternative propulsion (electric or hydrogen) solutions

- Continued improvement in infrastructure and operational efficiency, with a particular focus on improved air traffic management
- The use of approved offsets including carbon capture and storage technology

Milestones towards net zero

The below table illustrates a potential set of estimated milestones towards net-zero, including the mix of abatement measures ('pathways') and some noteworthy actions envisaged.

DATE	AMOUNT OF CO_2 ABATEMENT	PATHWAY	ACTION
2025	**381 megatonnes (Mt)** (2021-2025)	97% offsets, 2% SAF, 1% improvements above business as usual (BAU)	ICAO agree long-term goal for international aviation (2022); energy sector commits to at least 6 million tonnes SAF production; agreement of full implementation of Article of Paris Agreement
2030	**979 Mt** (2026-2030)	93% offsets; 5% SAF, 2% Improvements above BAU	Use of 100% SAF on aircraft, ANSPs fully implement ICAO Aviation System Block upgrades to deliver fuel efficiency improvements of 0.3% by 2030
2035	**1,703 Mt** (2031–2035)	77.5% offsets, 17.5% SAF, 3% improvements above BAU, 2% Carbon Capture Utilization and Storage (CCUS)	Evolutionary technology achieving 30% reduction in fuel burn, electric/hydrogen aircraft for regional markets (50-100 seats, 30-90 min flights) become available
2040	**3,824 Mt** (2036-2040)	44.5% offsets, 40% SAF, 7.5% non drop-in fuel (new propulsion technologies), 5% CCUS, 3% improvements above BAU	Feasibility of new aircraft such as blended-wing bodies demonstrated with full-scale working prototypes, electric/hydrogen for short-haul markets (100-150 seats, 45-120 min flights) become available.
2045	**6,153 Mt** (2041-2045)	55% SAF, 24% offsets, 10% non drop-in fuel, 8% CCUS, 3% improvements above BAU	Necessary infrastructure for new energy requirements (low carbon electricity/hydrogen) becomes available
2050	**8,164 Mt** (2046-2050)	65% SAF, 13% non drop-in fuel, 11% CCUS, 8% offsets, 3% improvements above BAU	Commercially viable annual SAF production of 449 billion litres available

Links

Text of net-zero resolution

Factsheets on SAF, Offsetting/Carbon Capture, New Technology, Operational/Infrastructure improvements
ATAG Waypoint 2050 report