

ICAO Aviation Green Recovery Seminar

TIME TO BUILD BACK BETTER





WAYPOINT 2050

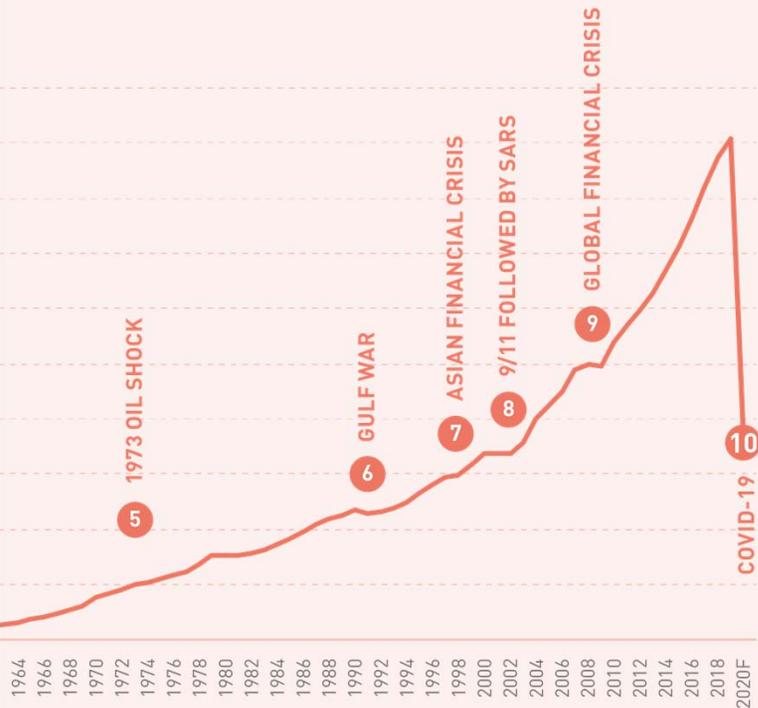
AN AIR TRANSPORT ACTION GROUP PROJECT

ICAO Green Recovery Seminar

Michael Gill | 23 November 2020



The largest shock in the history of air traffic, also an opportunity



↓ 94.4%
Drop in air traffic in April 2020 vs April 2019.

1.8 billion pax
expected in 2020:
around the same as in 2002.

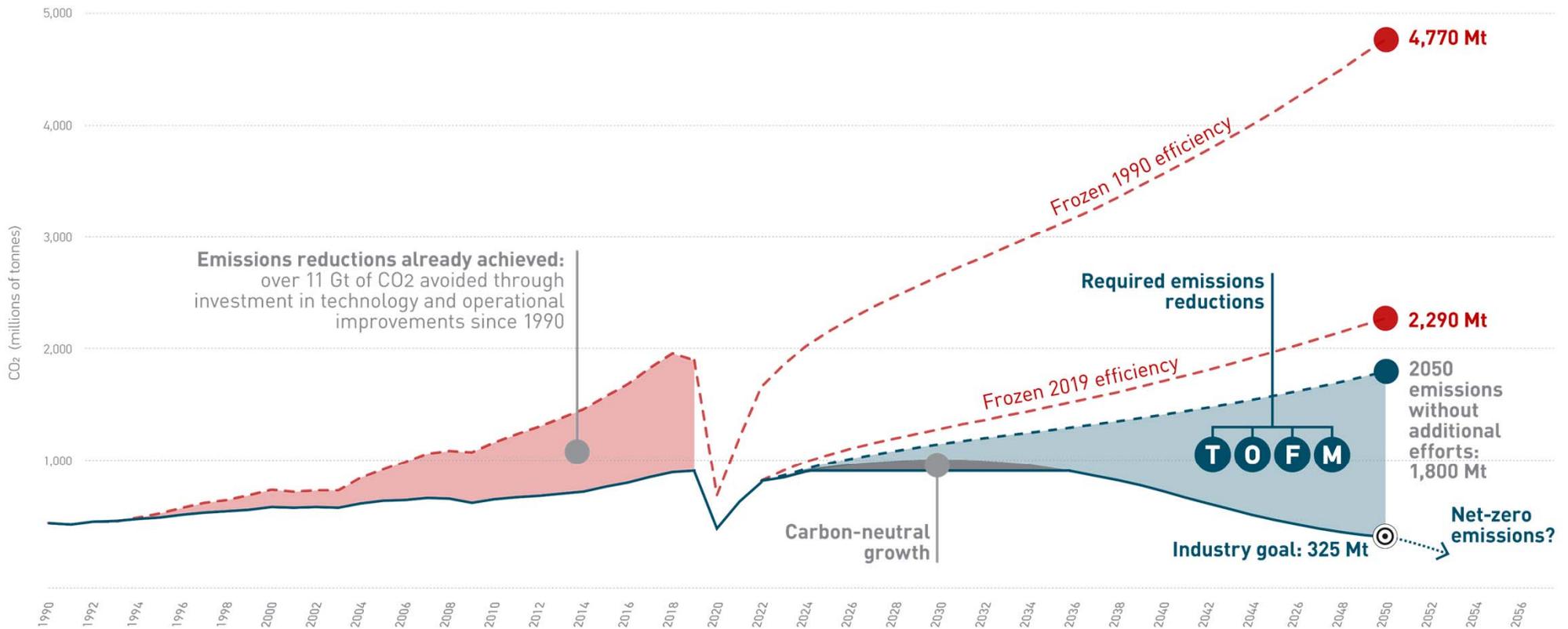
~330Mt CO₂
expected in 2020:
around the same as in 1977.

46 million
aviation-supported jobs
at risk across the
economy.

4.8 million
jobs in air transport at
risk, at airlines, airports
and through the sector.

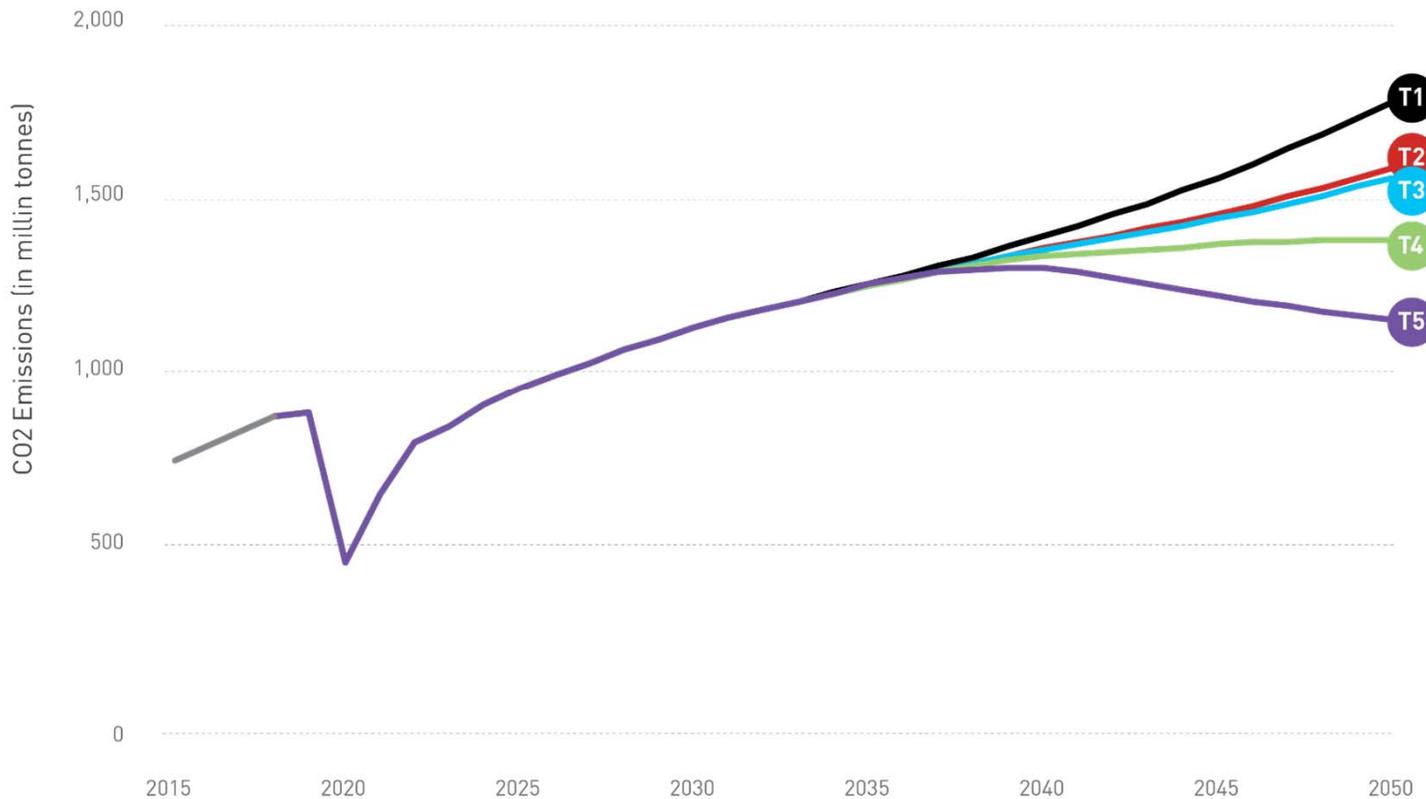
Restart possibilities?
Not often we get to step back
and think about our growth
profile – what can we do better?

Charting a course for 2050, and net-zero globally



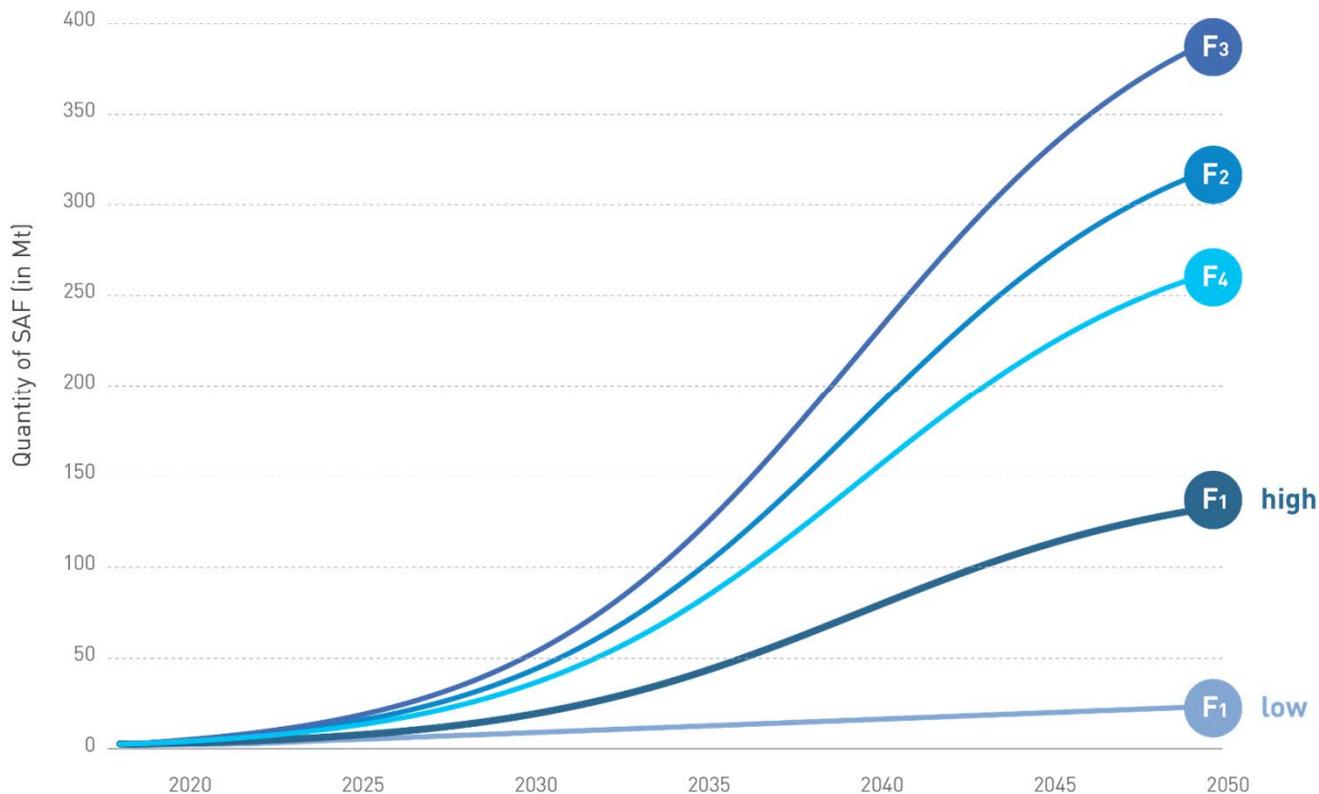
T Technology

How different technology scenarios can impact growth in CO2



Scenarios explore everything from 'business as usual' (T₂) to electric and hybrid from 2035 (T₄) to an aggressive introduction of hydrogen or electric in larger aircraft, earlier (T₅)

Waypoint 2050 forecasts for SAF



If we continue at current (or accelerated) rate (F₁) we will never reach the levels of SAF required to meet our climate goal. However analysis shows a significant scale up to up to 350 - 450Mt a year (F₃) is possible, albeit it a major challenge.

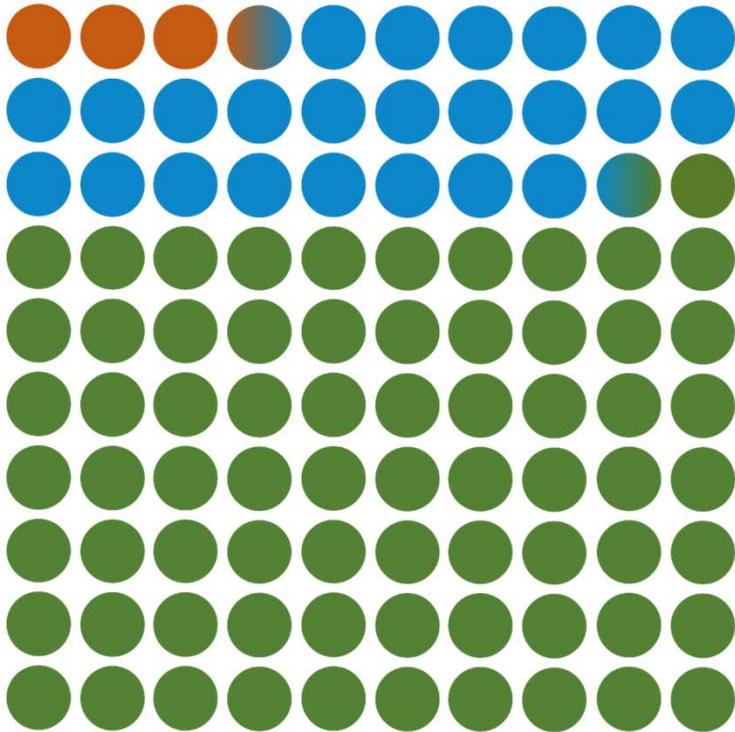
Bringing together elements

Indicative overview of where CO₂ measures could be deployed

	2020	2025	2030	2035	2040	2045	2050	
Commuter » 9-50 seats » <60 minute flights » <1% of industry CO ₂	SAF	Electric and/or SAF	Electric and/or SAF	Electric and/or SAF	Electric and/or SAF	Electric and/or SAF	Electric and/or SAF	~27% of CO ₂ emissions
Regional » 50-100 seats » 30-90 minute flights » ~3% of industry CO ₂	SAF	SAF	Electric or hydrogen fuel cell and/or SAF	Electric or hydrogen fuel cell and/or SAF	Electric or hydrogen fuel cell and/or SAF	Electric or hydrogen fuel cell and/or SAF	Electric or hydrogen fuel cell and/or SAF	
Short-haul » 100-150 seats » 45-120 minute flights » ~24% of industry CO ₂	SAF	SAF	SAF	SAF	Electric, hydrogen combustion and/or SAF	Electric, hydrogen combustion and/or SAF	Electric, hydrogen combustion and/or SAF	
Medium-haul » 100-250 seats » 60-150 minute flights » ~43% of industry CO ₂	SAF	SAF	SAF	SAF	SAF	SAF	SAF potentially some Hydrogen	~73% of CO ₂
Long-haul » 250+ seats » 150 minute + flights » ~30% of industry CO ₂	SAF	SAF	SAF	SAF	SAF	SAF	SAF	

Bringing together elements

SAF will remain a vital part of aviation decarbonisation



ATAG schematic indication of potential energy use in 2050

Even assuming highly optimistic use of **electric** and **hydrogen** energy for short-haul and some medium-haul operations in 2050, the vast majority of traffic (RPKs) will still rely on the use of **sustainable aviation fuel**.

2050 % of operations by energy source (indicative example)



Key conclusions of Waypoint 2050 research

1

Industry long-term goal of -50% net CO₂ from aviation globally by 2050 **is very challenging, but achievable.**

(there are several pathways to meeting the goal)

2

With the right policy support and advances in technology, **net-zero aviation** can be achieved **globally** by around 2060/65.

(in some regions earlier than this point)

3

We will need a **significant scale-up of sustainable aviation fuel**: to around 450-500 million tonnes a year by 2050.

(long-haul routes will rely on SAF)

4

New technology such as electric and hydrogen aircraft, **need accelerated research & development**

(could enter service around 2035 on short-haul routes)

5

Operations and infrastructure efficiencies are **vital for early action** and to maintain capacity efficiency in the future.

(mainly relates to air traffic management)

6

Offsetting important in the mid-term. Long-term goals should be achievable without offsetting playing a central role.

(by 2050, offsetting will mainly be in carbon removal opportunities)

For more information

Download the reports

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www.aviationbenefits.org/W2050

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