

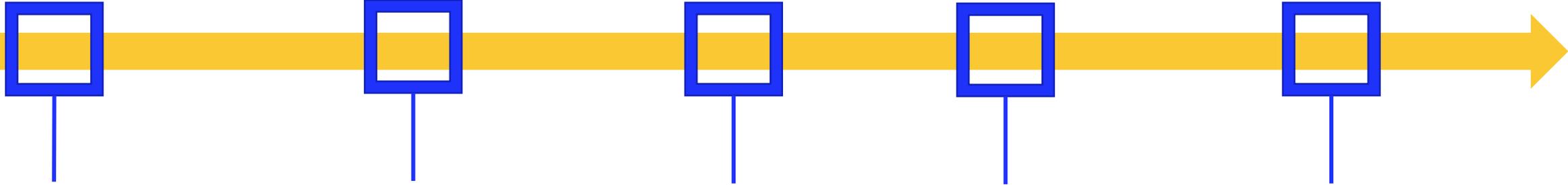
How to increase the deployment of SAF with CORSIA

ISCC Stakeholder Meeting: Decarbonisation of the Aviation Sector

Robert Boyd
Assistant Director, Aviation Environment
Virtual Meeting: 3rd December 2020 - 2-5pm CET



CORSIA: Is SAF relevant?



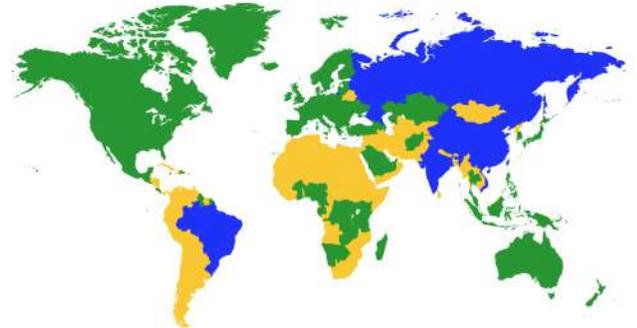
ICAO Assembly - 2013: Agreement to develop a Market-based-mechanism

ICAO Assembly 2016: Decides to implement a GMBM in the form of the Carbon Offsetting and Reduction Scheme for International Aviation (**CORSIA**)

June 2018: First edition of SARP (Annex 16, Vol IV) adopted by ICAO Council

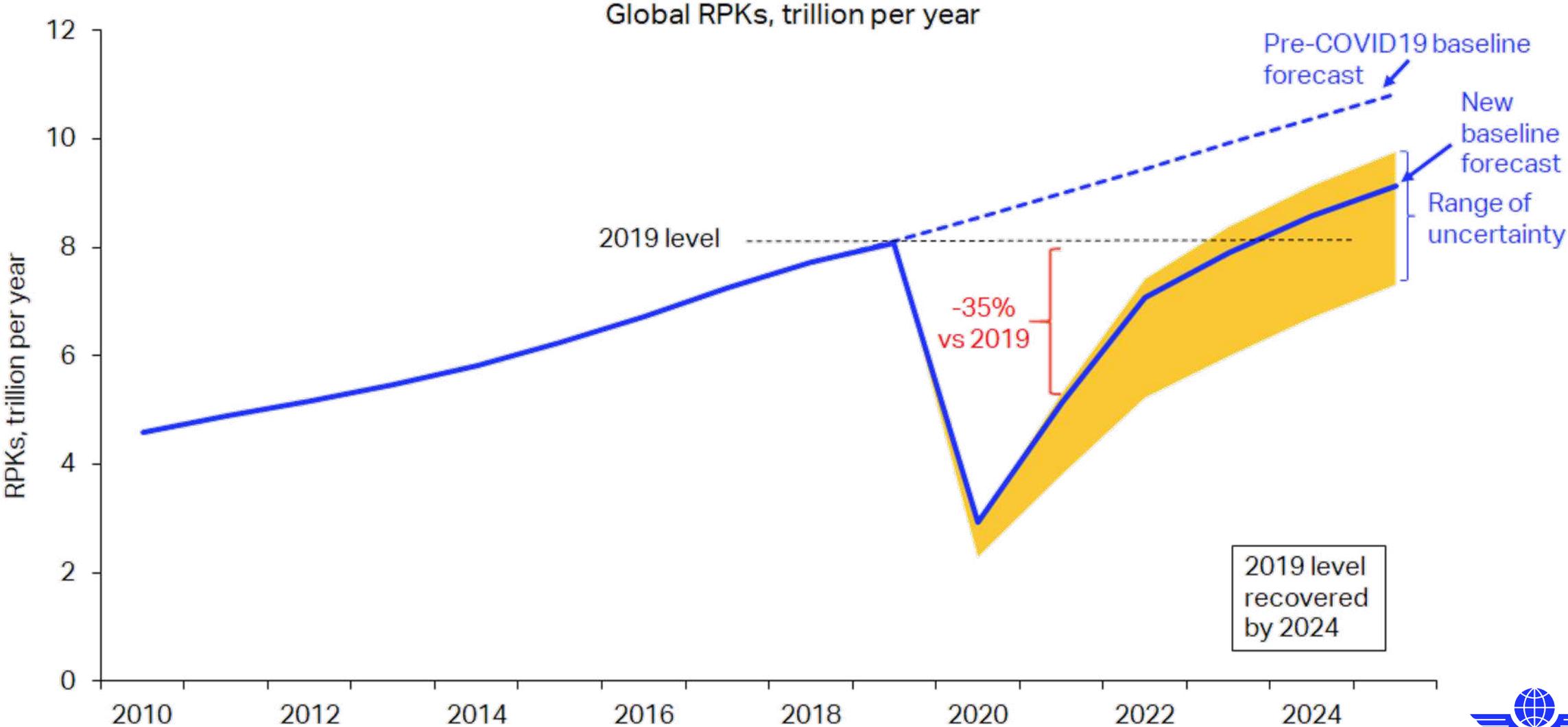
From 2019: Airlines begin collecting and reporting fuel data for baseline calculation

2021 CORSIA commences (88 States have volunteered)



Passenger volumes do not recover 2019 levels until 2024

Does the difficult outlook impact SAF?



Source: IATA/Tourism Economics, *Air Passenger Forecasts*, July 2020 update



This year's IATA AGM resolution shows airlines' continuous commitment to fight climate change



Despite the catastrophic effects of the COVID-19 pandemic on the industry, the IATA AGM:

REAFFIRMS the strong commitment of IATA member airlines to respond to the climate challenge

PLEDGES to

- half the industry's 2005 net CO2 emissions by 2050
- explore pathways to reach net zero emissions

URGES governments to support the transition to Sustainable Aviation Fuels and avoid cost-ineffective instruments such as ticket or carbon taxes

The game-changer is Sustainable Aviation Fuels



Sustainable Aviation Fuels (SAF) are the only current viable and scalable solution to aviation's climate challenge:

- SAF will only be used if it comes from **sustainable sources**, e.g. used cooking oil, waste and residues, (inc municipal waste / waste gases), non-food crops, salt-water plants
- SAF **cuts life-cycle emissions by up to 80%**
- SAF is a **"drop-in" fuel**, i.e. can be used immediately, without adaptations to the aircraft engine
- SAF has **already been used** in 300,000 commercial flights
- There is enough **SAF feedstock** to meet aviation's needs in 2050 – but this must be sustainable.
- **SAF must scale up and FAST!**

CORSIA: There are two ways for an airline to meet its obligation

Purchasing eligible emissions units per the final offsetting requirements.

Use of CORSIA Eligible Fuel (CEF)

This includes: **CORSIA sustainable aviation fuel** and CORSIA low carbon aviation fuel.

Accounting of sustainable aviation fuels (SAF)

The emissions reductions that an operator can claim from sustainable aviation fuels will be proportional to the life cycle emissions benefits of the alternative fuels used.

Claims are based on mass of SAF according to purchasing and blending records

Certified by a CORSIA Approved Sustainability Certification Scheme

$$\text{Emissions reduction} = 3.16 * \text{SAF} * \text{GHG benefit}$$

↑
Emission factor for Jet A-1

EXAMPLE:

Emissions = (Fuel used * Combustion EF factor) + (SAF * Emissions reduction factor * Combustion EF) = CO₂

A. $(10 \text{ tonnes} * 3.16) + (\text{zero SAF} * \text{ERF}) = \mathbf{31.6 \text{ tonnes CO}_2}$

B. $(8 \text{ tonnes} * 3.16) + (2 \text{ tonnes SAF} * 20\% * 3.16) = \mathbf{26.54 \text{ tonnes CO}_2}$

How to measure sustainability?

(Sustainability criteria for SAF under CORSIA)

Sustainability Certification Scheme Attestation

Theme 1-7

1. Minimum GHG reduction achievement

2. Carbon Stock

3. Water

4. Soil

5. Air

6. Conservation

7. Waste and Chemicals

National Attestation

Theme 8-10

8. Human and labor rights

9. Land use rights and land use

10. Water use rights

Voluntarily compliance

Theme 11-12

11. Local and social development

12. Food Security

No assessment by SCS



Scale up and Policy:

1. Industry direction

- Waypoint 2050

2. EU Policy

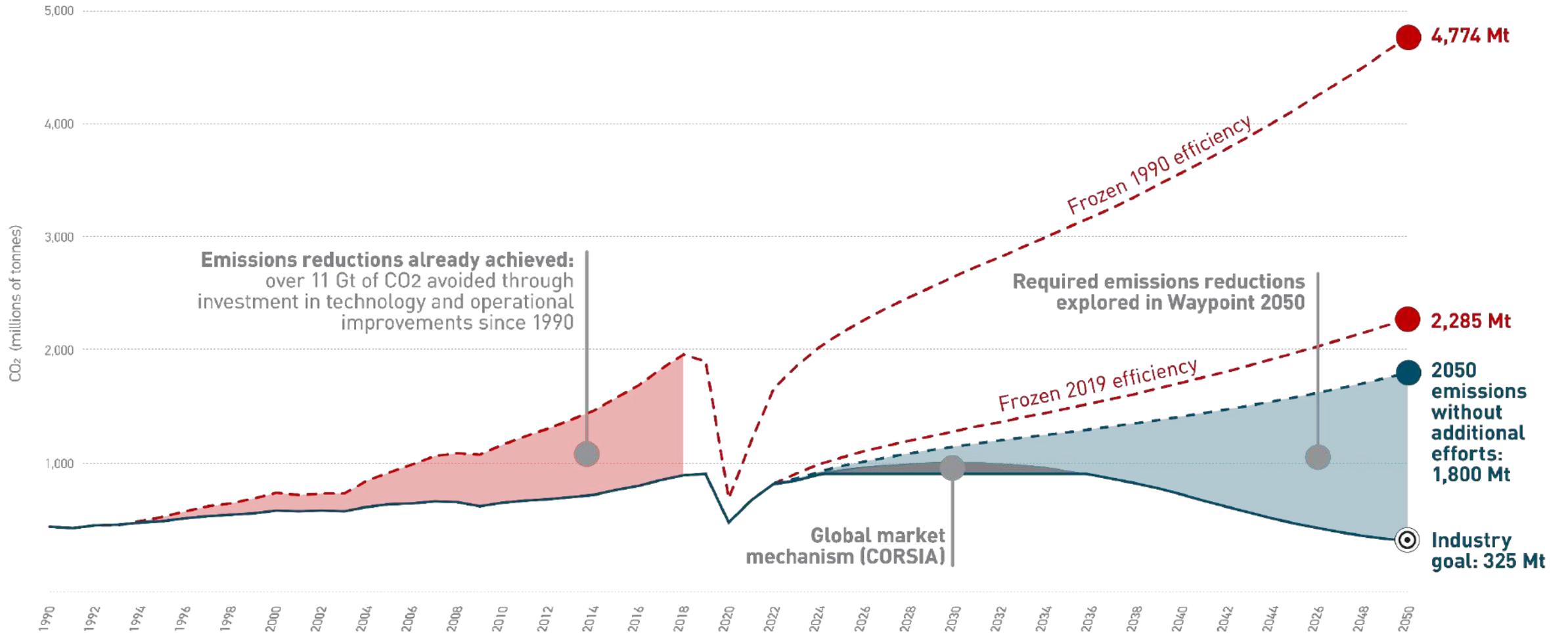
- ReFuelEU

3. ICAO

- LTAG



Charting a course for 2050



Development of the analysis

Experts in five working groups developed forecasts and likely pathways

- Traffic forecasting
- Technology developments
- Operations and infrastructure
- Sustainable aviation fuel
- Offsetting (market-based measures)

These were developed into a set of consolidated scenarios to meet the industry goal

Scenario 0

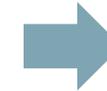
Scenario 1

Scenario 2

Scenario 3



325 Mt CO₂



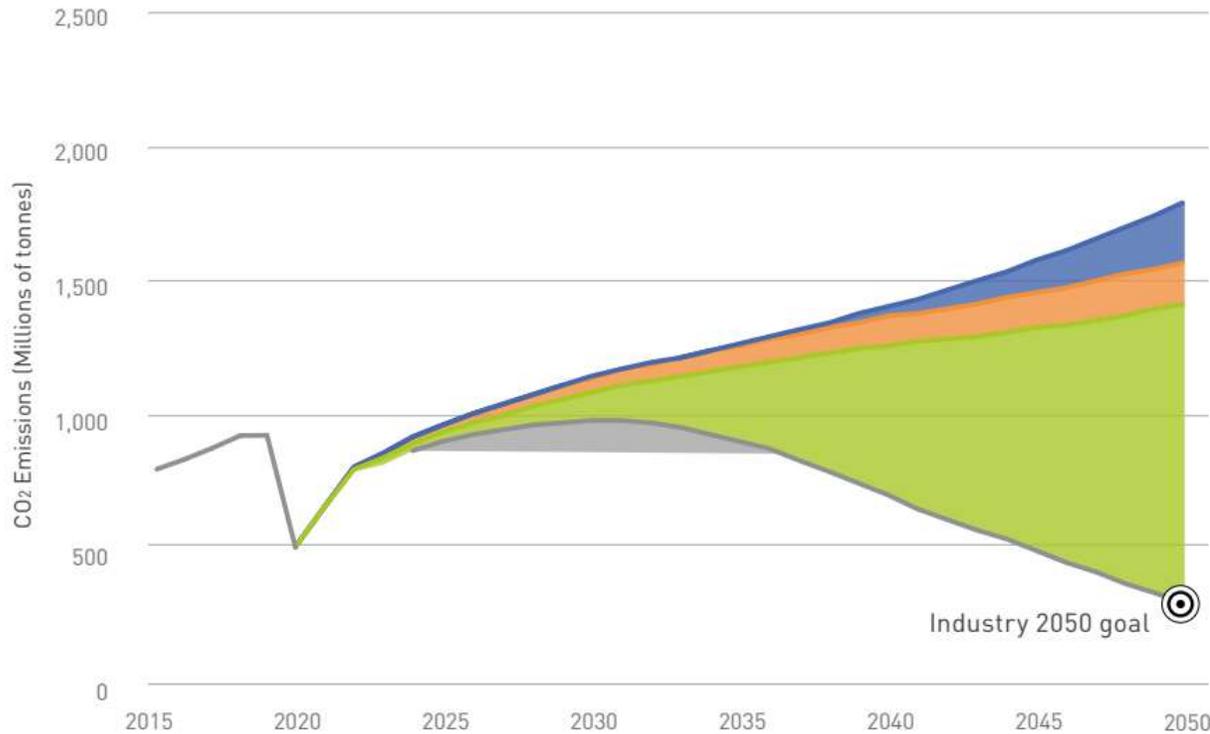
When is net-zero possible, globally?

Each of these generated many hundreds of individual pathways and possibilities. The most likely scenarios were explored. The impact of the Covid-19 shutdown on air traffic was included in July 2020.

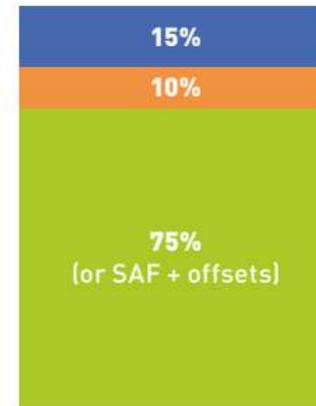
*Experts took into account the **state of technology research**; **timeframe** (i.e. can new technologies go through certification and entry-into-service in time?); **political considerations** (governments setting goals and helping achieve them); **investment likelihood**.*

Scenario 2: aggressive sustainable fuel deployment

Industry prioritises investment in sustainable aviation fuel over technology



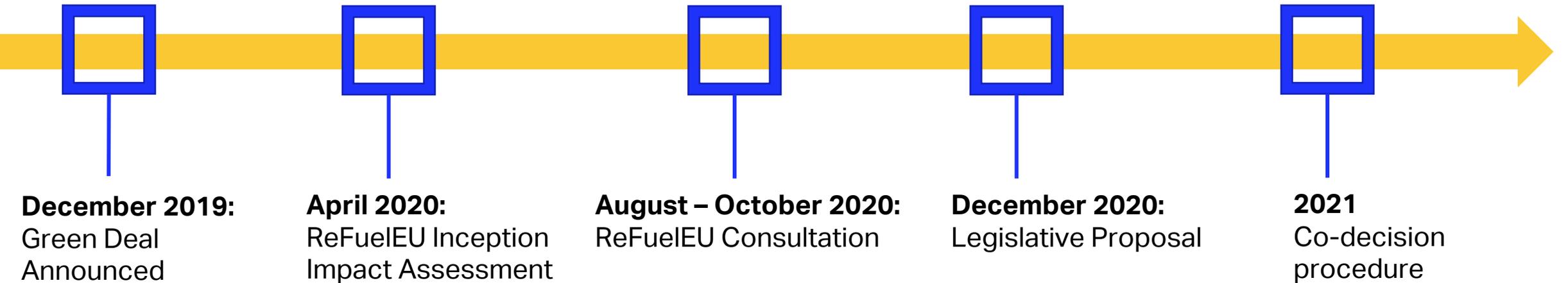
Emissions reduction contributions in 2050



Traffic growth	C	Central scenario: 3.0% CAGR 2019-2050
Technology developments	T₃	New airframe configurations with substantial aerodynamics performance such as blended wing body
Operations and infrastructure improvements	O₂	Mid-range improvements and airline load factor improvements
Sustainable aviation fuel	F₃	Backcast of what is required (around 1,100 Mt CO ₂ reduction) to meet the goal: a range of 350-450 Mt of SAF with a 77-100% emissions reduction factor by 2050
Offsets (or other carbon mitigation options)	IF NEEDED	If required to address any remaining emissions above the 2050 goal

EU SAF Policy: ReFuelEU

Outlook for SAF policy in Europe: Context



The Future: ICAO

ICAO Long-Term Goal
(A41) in 2022

Conference on Aviation
Alternative Fuel (before
2025)

Possible that a
quantitative declaration is
agreed by States



The Future: CAEP

The Fuels Task Group
(Technology/Production/
Policy) will produce 2035
SAF forecasts before the
end of the CAEP/12 cycle
(2022).

The Future: Industry

Regional roadmaps

Energy Transitions
Policies - ReFuelEU
(Sustainable Aviation UK) / Jet Zero
Council)

Industry targets:

- 1.5% efficiency
- CNG, 2020
- 50% decrease by 2050,
relative to 2005

WayPoint 2050 roadmap

Clean Skies for Tomorrow
(WEF)

Questions

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