

Sustainability

CAPA

WORLD AVIATION
Summit & Awards 2022



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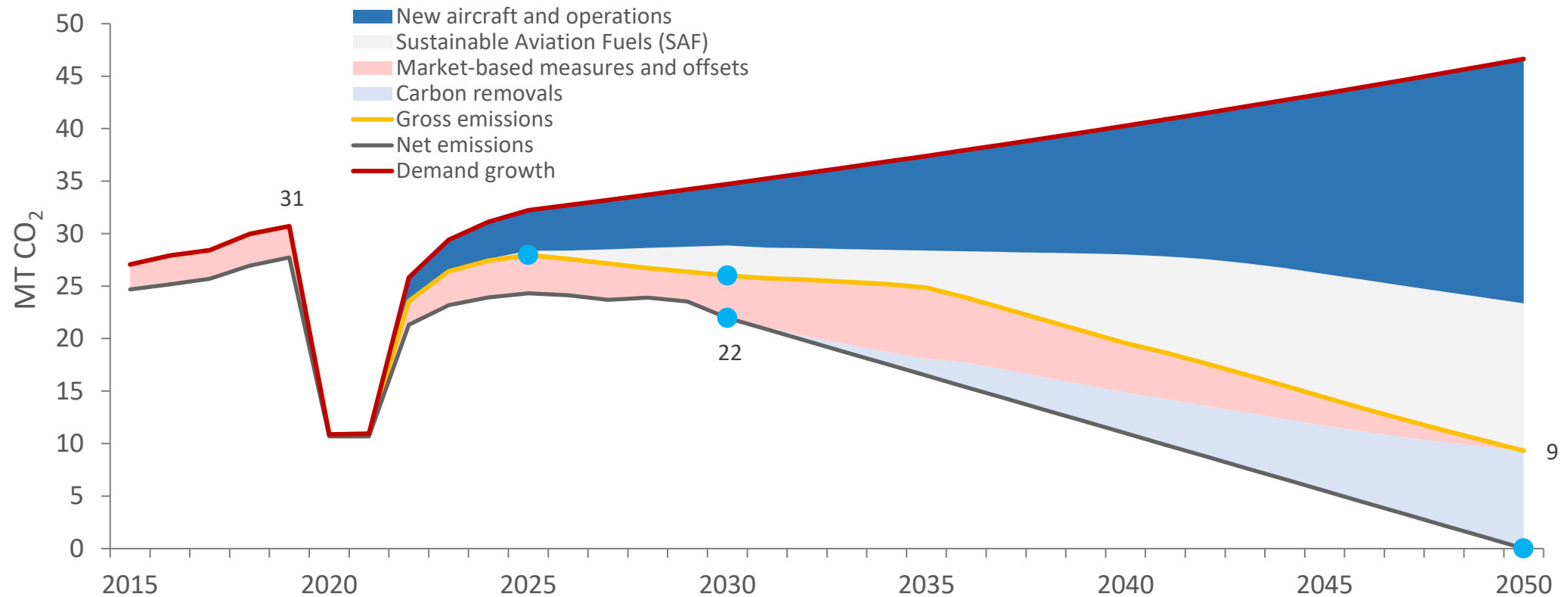
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1. Offsetting
2. SAF
3. Hydrogen/Electric aircraft
4. Carbon capture
5. Transparency/KPIs/Data

Latest IAG roadmap scenario

- Gross emissions 70% lower than in 2019, emissions intensity 80% lower, dependent on policy support.
- Compliance and voluntary offsets are 10% of cumulative emissions reductions



SAF is here-and-now the only longhaul decarbonisation solution

	2020	2025	2030	2035	2040	2045	2050
Commuter » 9-19 seats » < 60 minute flights » <1% of industry CO ₂	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	Electric or Hydrogen fuel cell and/or SAF
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 potentially some Hydrogen	Hydrogen and/or SAF	Hydrogen and/or SAF	Hydrogen and/or SAF
Medium haul » 100-250 seats » 60-150 minute flights » ~43% of industry CO ₂	SAF	SAF	SAF	SAF	SAF potentially some Hydrogen	SAF potentially some Hydrogen	SAF potentially some Hydrogen
Long haul » 250+ seats » 150 minute + flights » ~30% of industry CO ₂	SAF	SAF	SAF	SAF	SAF	SAF	SAF

Future SAF targets/ambitions

- Mar 2021 US Government / Airlines 15% by 2030 65% by 2050
- Apr 2021 IAG 10% by 2030 60% by 2050
- May 2021 Ryanair 12.5% by 2030
- Jul 2021 EU FF455 Refuel 6% by 2030, 20% by 2035 85% by 2050
- Oct 2021 Oneworld Alliance 10% by 2030
- Oct 2021 WEF CST initiative 10% by 2030 50%+ by 2050
- Mar 2022 ICAO LTAG report 25%-60% by 2050
- Jul 2022 UK SAF Mandate 10% by 2030 to 75% by 2050

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Booking Tool	Market in which OBT is used	Carbon emissions (kg)
Cytric	Spain	310
TMC's own tool	Finland	690
KDS	Netherlands	819
Concur	Latin America	1,016
TravelDoo	France	1,218

Source Amen Cohen/BTN

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Primary objective for the ICAO General Assembly: agree a Long-Term Aspirational Goal (LTAG)

- Over the last three years ICAO have undertaken a detailed study to assess decarbonisation options for aviation
- This LTAG report was published in March 2022 and concludes that the primary decarbonisation opportunity is SAF
- This is the key to influencing member states that an LTAG is achievable

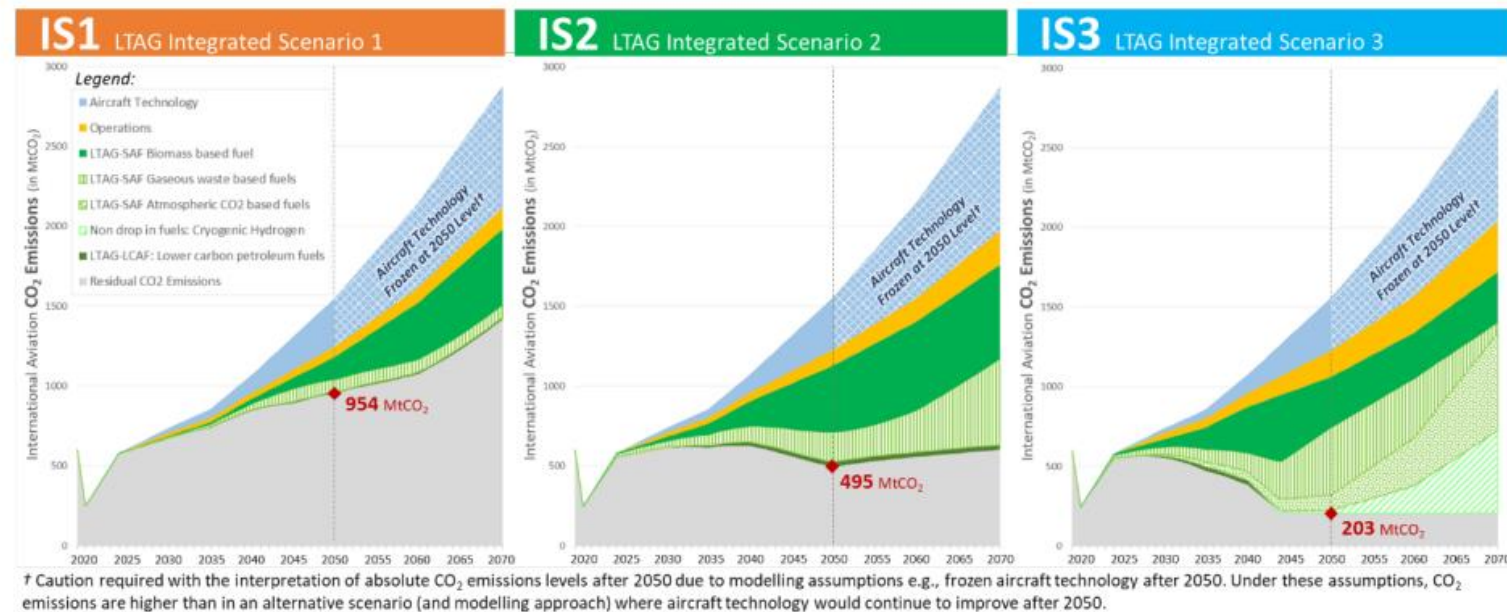
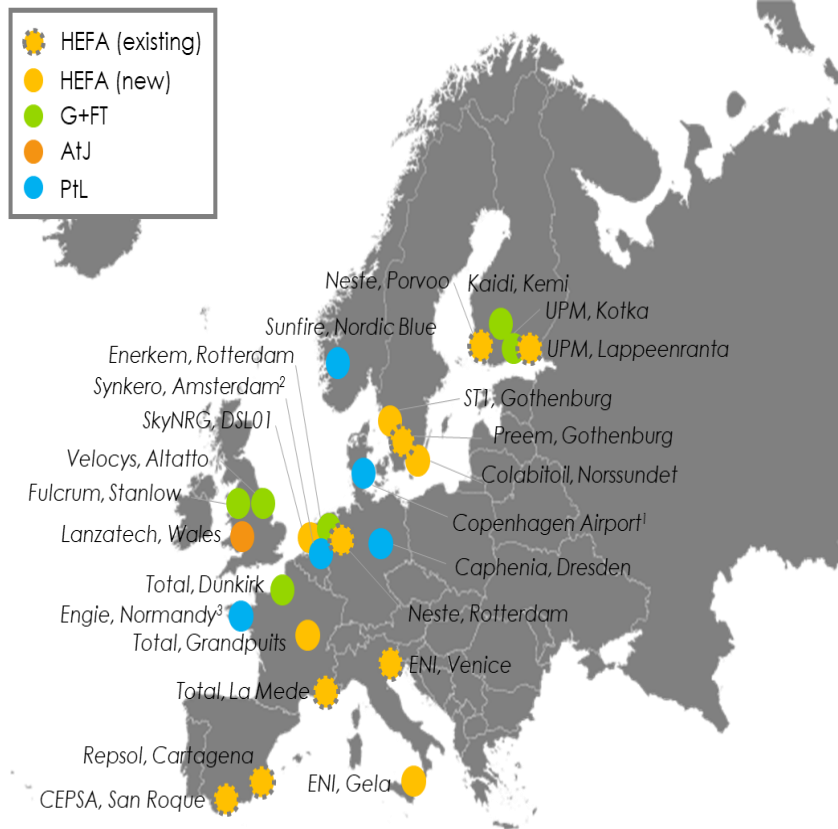


Figure 1. CO₂ emissions from international aviation associated with LTAG Integrated Scenarios

EU and UK Planned SAF capacity

Announced Projects with SAF Production Capacity 2020-2025



	Supplier	Country	Site	Tech.	Start Year	Total Fuel Capacity (Mt./yr.)
Existing Facilities	NESTE	Finland	Porvoo	HEFA	-	0.6
	NESTE	Netherlands	Rotterdam	HEFA	-	1.1
	UPM	Finland	Lappeenranta	HEFA	-	0.1
	TOTAL	France	La Mede	HEFA	-	0.5
	CEPSA	Spain	San Roque	HEFA	-	0.1
New Projects	REPSOL	Spain	Cartagena	HEFA	-	0.1
	Enerkem *	Netherlands	Rotterdam	G+FT	2021	<0.1
	COLABITOIL	Sweden	Norssundet	HEFA	2021	0.5
	eni	Italy	Gela	HEFA	2021	0.2
	ST1	Sweden	Gothenburg	HEFA	2022	0.2
	KAIDI *	Finland	Kemi	G+FT	2022	<0.1
	SKYNRG	Netherlands	DSL01	HEFA	2023	0.1
	preem **	Sweden	Gothenburg	HEFA	2023	0.8
	sunfire *	Norway	Nordic Blue	PtL	2023	<0.1
	CAPHENIA *	Germany	Dresden	PtL	2023	<0.1
	eni **	Italy	Venice	HEFA	2024	0.8
	TOTAL	France	Grandpuits	G+FT	2024	0.2
	TOTAL	France	Dunkirk	HEFA	2024	0.3
	SKYNRG Lanzatech	TBD ²	FLITE	AtJ	2024	0.0
	NESTE	TBD ³	TBD	HEFA	2025	1.0
	VELOCYS	UK	Altalto	G+FT	2025	0.1
	Lanzatech	UK	Wales	AtJ	2025	0.4
	UPM	Finland	Kotka	G+FT	2025	0.5
	Fulcrum	UK	Stanlow	G+FT	2025	0.1
	Synkero	Netherlands	Synkero ⁴	PtL	2027	0.1
ENGIE	France	Normandy ⁵	PtL	TBD	TBD	