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Sustainability: SAF Outlook and SAF Registry

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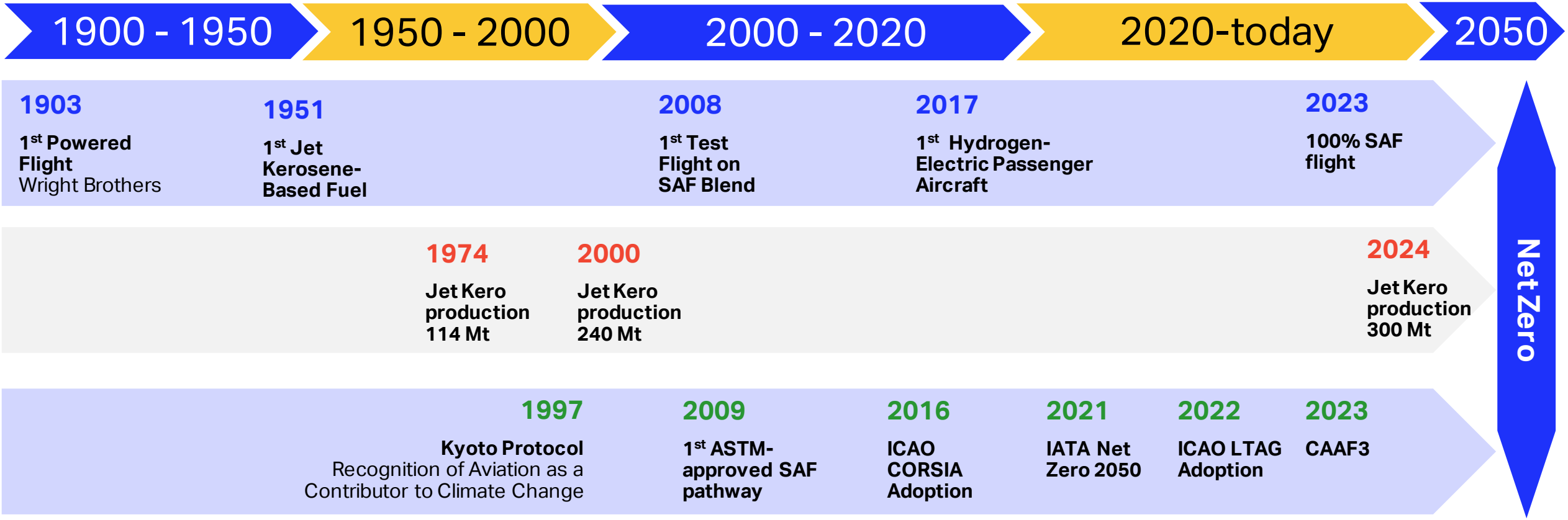
Content

1. SAF Production Status and Outlook
2. SAF Registry
3. Aviation's Net Zero Transition

Energy transition in the aviation industry



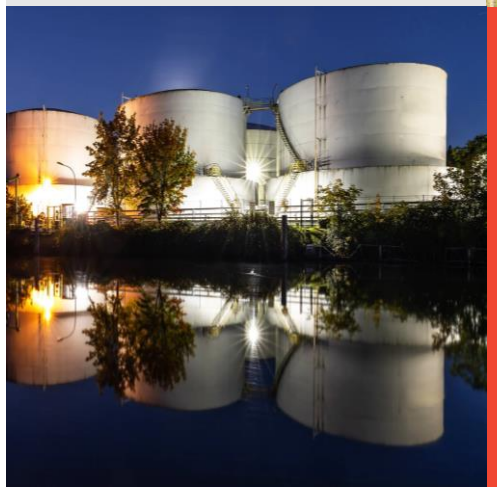
The big picture: SAF projects

>**220** renewable fuel projects, mapped globally

158 identified renewable fuels projects with **SAF** capability are progressing to be online by 2030

37
Countries with announced SAF projects

78%
of renewable fuel will be HEFA in 2030

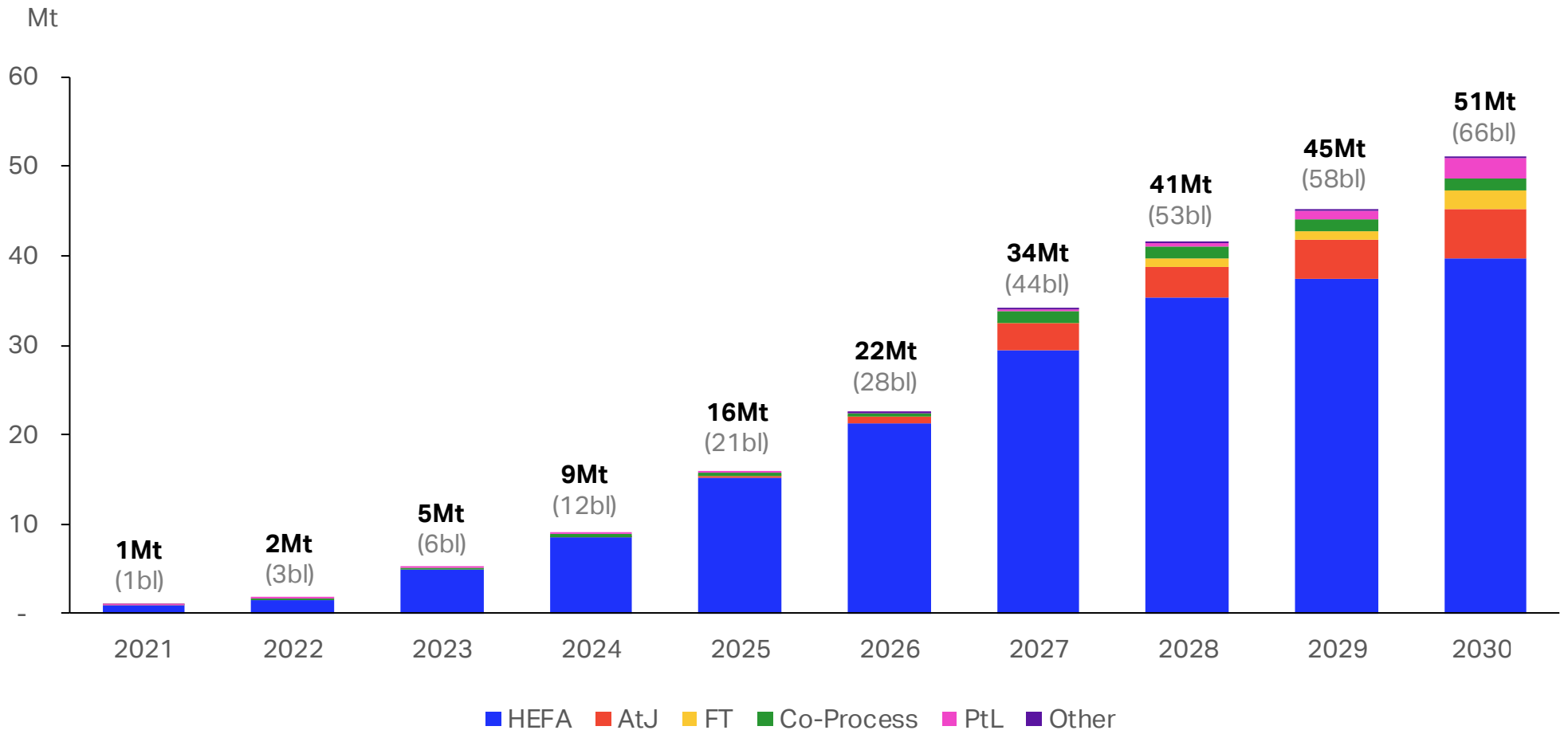


~51Mt
Renewable fuel capacity* to 2030

Source: IATA Sustainability and Economics

* Renewable fuel capacity of projects with current or upcoming SAF production capability

Global renewable fuel capacity* by 2030



Source: IATA Sustainability and Economics

* Renewable fuel capacity of projects with current or upcoming SAF production capability

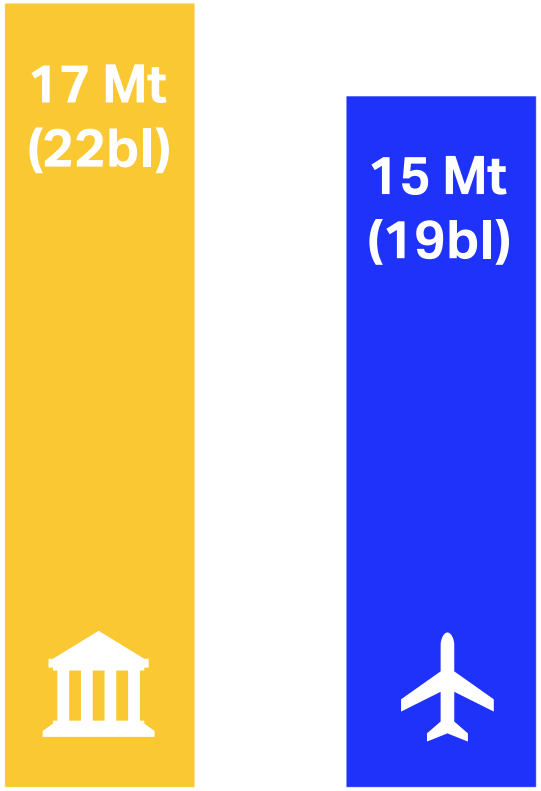
SAF production status

	2019	2020	2021	2022	2023	**2024e**	2025f
Estimated conventional jet fuel consumption (Million tonnes or Mt)	291	157	188	230	278	**305**	322
Estimated SAF output (Mt)	0.02	0.05	0.08	0.24	0.5	**1.0** (1.30bl)	2.1
SAF% of global jet fuel	0.01%	0.03%	0.04%	0.1%	0.2%	**0.3%**	0.7%
SAF% share from total renewable fuel capacity*						**11%**	13%

Source: IATA Sustainability and Economics

* Renewable fuel capacity with current or upcoming SAF production capability

Policies & airline commitments by SAF volumes (2030)



Incentives and policies SAF volume (2030)

Voluntary commitments SAF volume (2030)

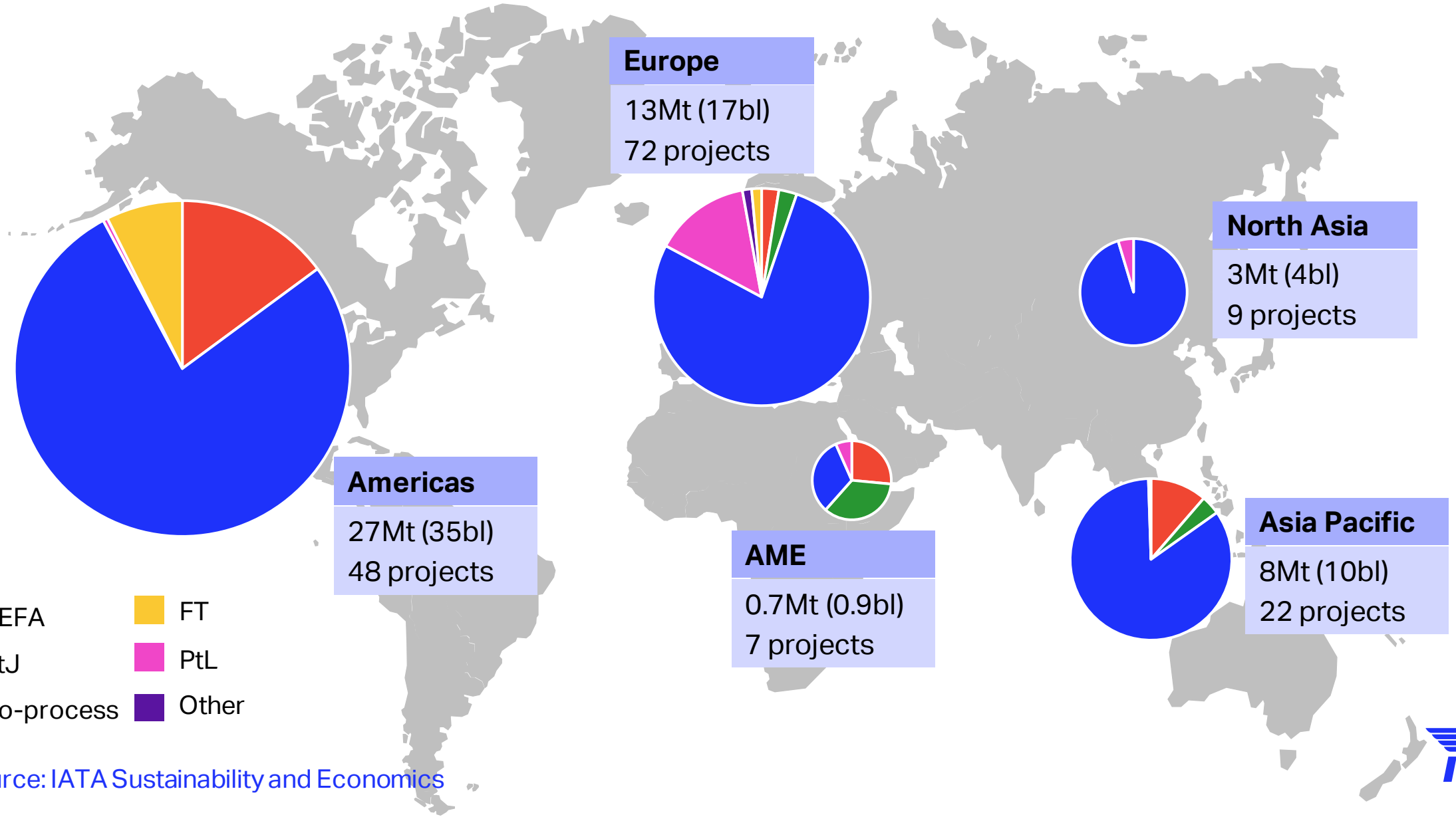
58% SAF from **incentives**

42% SAF from **mandates**

71 **airlines** with SAF voluntary commitments/ agreements

Source: IATA Sustainability and Economics

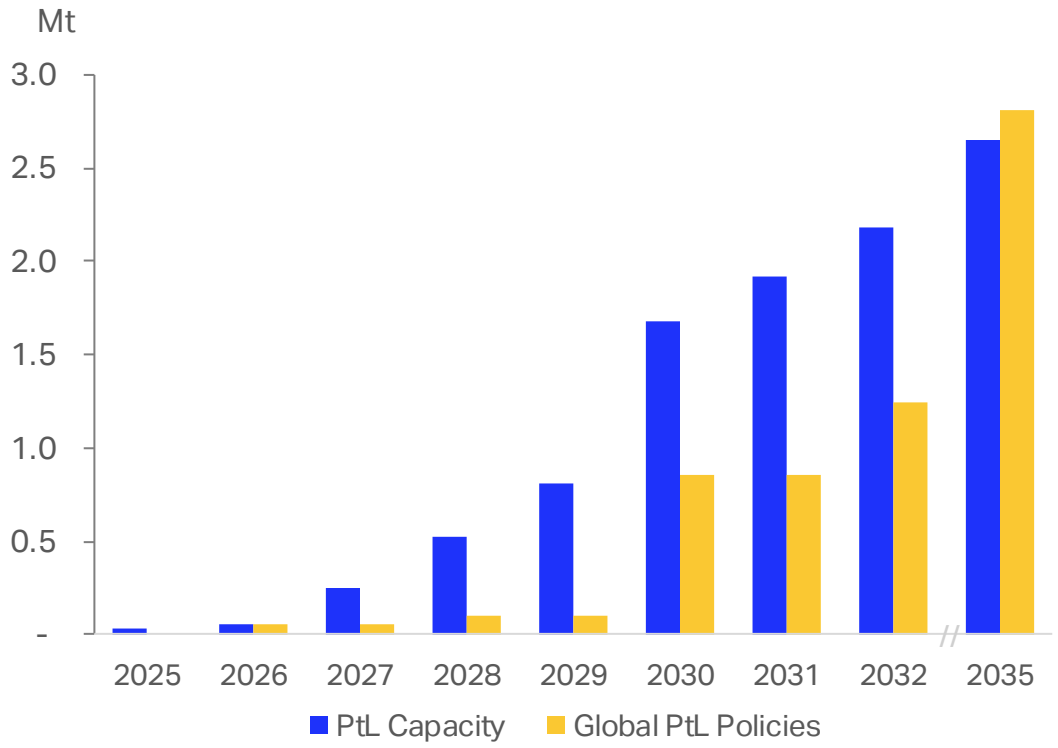
Projects & SAF pathways by 2030



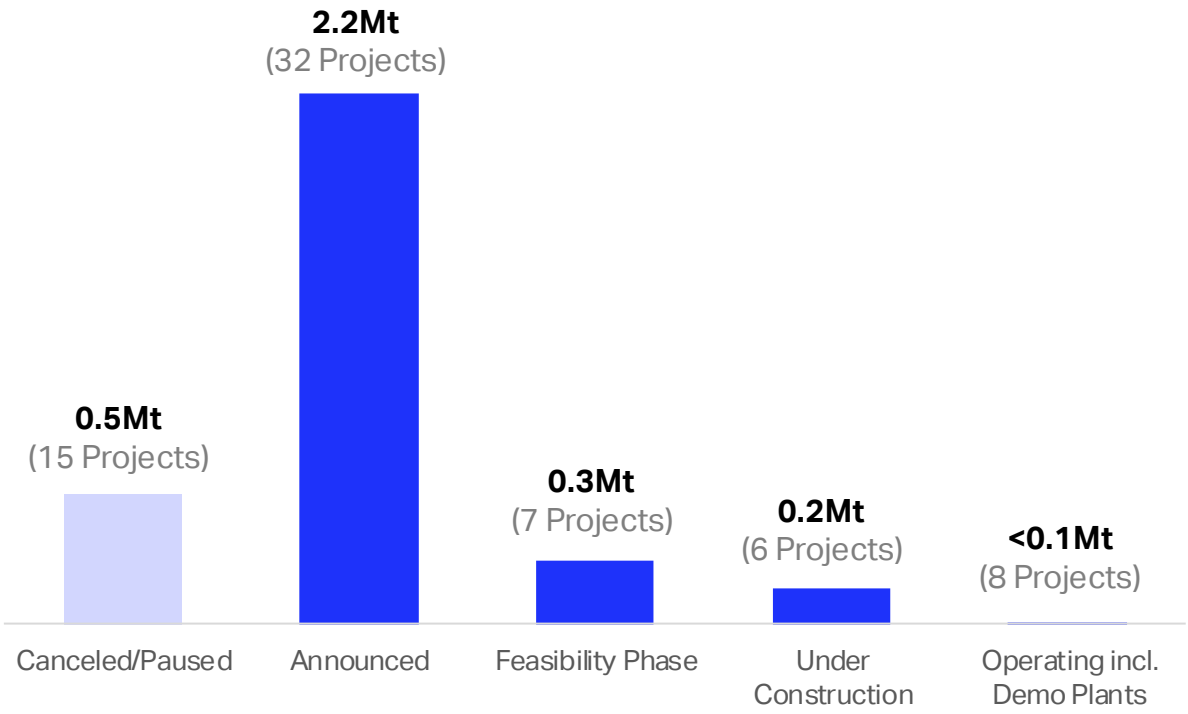
Source: IATA Sustainability and Economics

Can PtL be a game-changer?

Global PtL project capacity & policy volumes



2035 PtL capacity by current project's status



Source: IATA Sustainability and Economics

Key SAF facilitation programs being led by IATA

Current IATA initiatives

Model SAF Procurement Contract	SAF Procurement Training across IATA member airlines	SAF Registry / Book & Claim	SAF Production Accelerator Programs	Track Zero across IATA member airlines
Complete and available to industry	Complete with SAF Handbook	Pilot 2024 Operational 2025	Ongoing	Ongoing
	Guidance on Sustainability Documentation	SAF Matchmaker 2025		
	CORSIA and ReFuel EU Handbooks	Fuel Data Standards 2025		

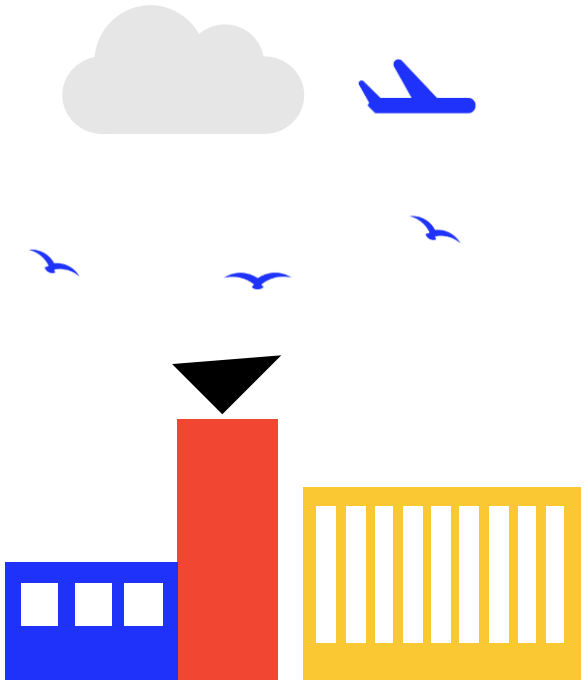
Why do we need a global SAF Registry?

- SAF is the **most significant lever** in decarbonizing aviation.
- SAF is not available in **enough quantities**.
- SAF is not available in **all geographical locations**.
- SAF should be used **closest to where it has been produced**. Hence, a "**SAF Book and Claim**" approach is needed.
- **High cost of SAF** when compared with conventional fuel.
- Airlines face **regulatory and mandatory SAF requirements** that are complex to fulfill.

65%

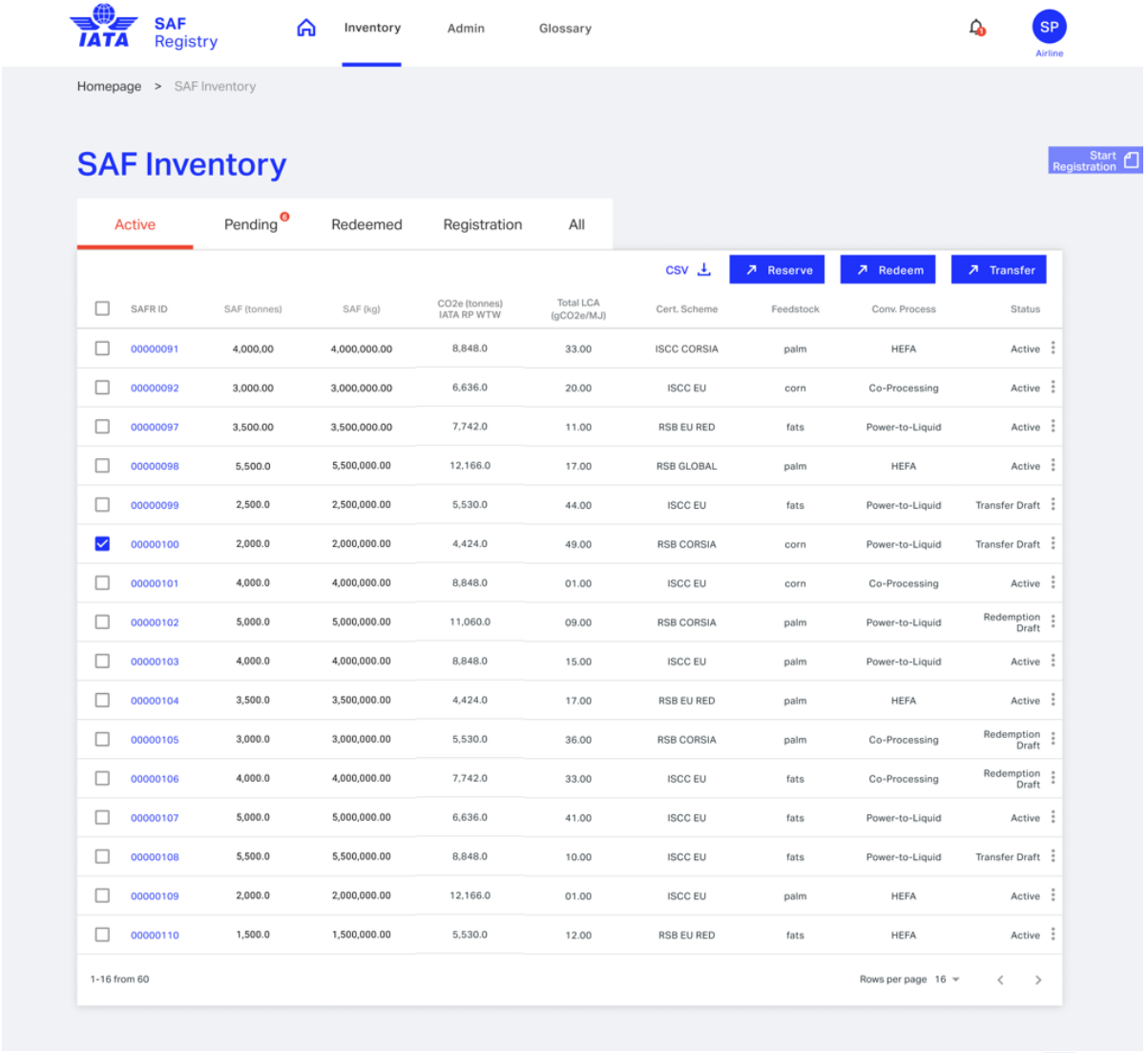
of aviation emissions expected to be abated using SAF by 2050

Source: IATA Net Zero Roadmaps



What does the SAF Registry do?

- Decouples SAF environmental attributes (benefits) from the product.
- Registers and robustly tracks CO2 emissions reductions from SAF.
- Allows the transfer of environmental attributes, e.g., from SAF suppliers to airlines.
- Facilitates the accounting of SAF reductions and claiming under regulatory claims, e.g., EU ETS.
- Minimizes costs & administrative burden of SAF stakeholders.



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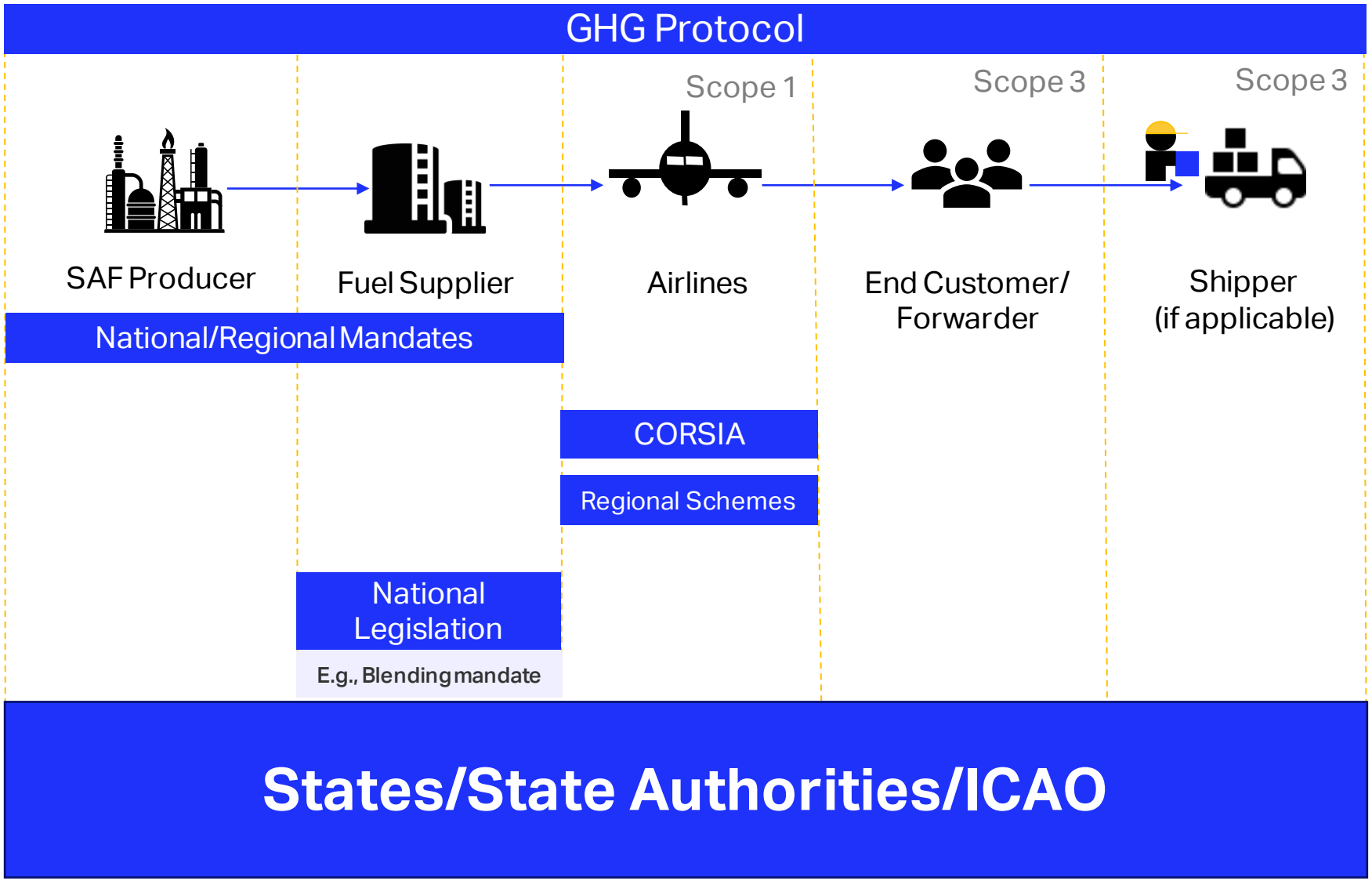
High Level Overview



Transactional Integrity

- Record transactions and sustainability attributes of SAF
- Ensure immutable tracking of SAF batches and related certificates

Reporting Integrity

- Facilitate Scope 1 and Scope 3 claims following GHGP
- Enable airlines to comply with regulatory frameworks (e.g. **CORSIA**, or other regional schemes)

Who are the early adopters?

EUROPE

- Air France-KLM
- DHL Group
- International Airlines Group (IAG)
- SAS
- Swiss International Air Lines
- Signature Aviation

NORTH ASIA

- Cathay Pacific
- Juneyao Airlines
- SF Airlines

AMERICAS

- American Airlines
- Air Canada
- Delta Air Lines
- JetBlue
- LATAM
- United Airlines
- Southwest Airlines

AFRICA & MIDDLE EAST

- Emirates
- Ethiopian Airlines
- Etihad Airlines
- Kenya Airways
- Qatar Airways
- South African Airlines

ASIA PACIFIC

- All Nippon Airlines
- Japan Airlines
- Malaysia Aviation Group
- Singapore Airlines

30	12	6	3	1	3
Airlines	Producers	States	OEMs	Airport	TMC

Status of Development

Dec 2023
Project **Approved**

Jan 2024
Project **Kick-off**

Q2 2024
RP SAF Accounting & Reporting
SAF **Manual** Finalized
Detailed **BRD**

June 2024
AGM announcement

July 2024
System development
and wireframes

December 2024
Pilot: Test scenarios for airlines and fuel producers/suppliers

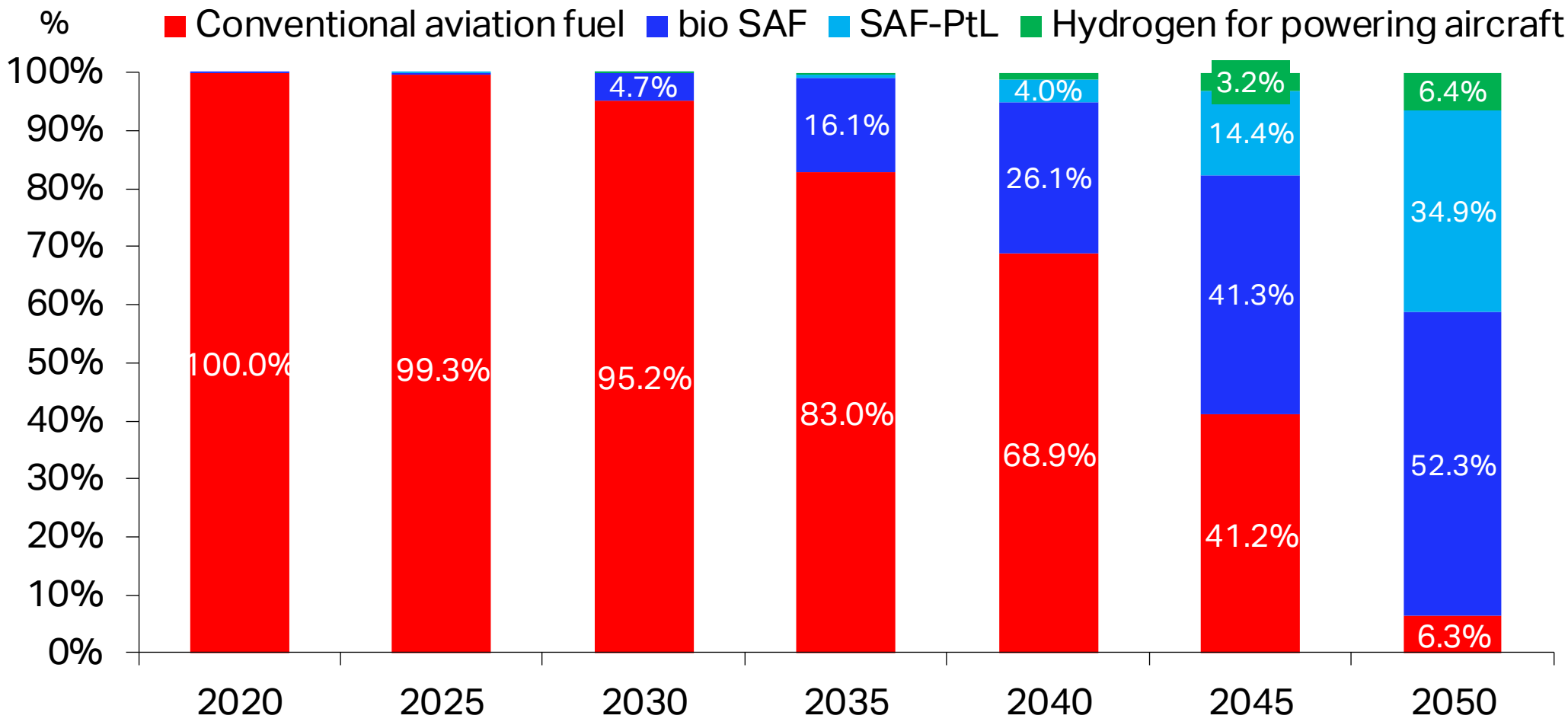
April 2025
MVP Launch

June 2025
Release 2

In progress:
- Pilot with airlines and fuel suppliers
- Additional stakeholder sessions
- Progress on interoperability

Air transport transition to alternative cleaner energies

Share of in-flight energy demand by energy sources under the IATA Roadmap



Source: IATA Sustainability and Economics

3 key elements in the Finance Roadmap: 2024 to 2050

CAPEX TO INVESTORS

New renewable fuel plants needed

Best-case scenario: **minimum** number of plants needed **3,096**

Worst-case scenario: **maximum** number of plants needed **6,658**

Capital investment (capex) needed

Best-case scenario: **minimum** capex needed **$3.9 trillion**

Worst-case scenario: **maximum** capex needed **$8.1 trillion**

COST TO AIRLINES

Transition Cost

$4.7 trillion additional cost to airlines for using:

- SAF
- Offsetting via CORSIA
- Hydrogen for aircraft
- Carbon removals

Source: IATA Sustainability and Economics

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