



***AIRBUS - Steven Le Moing
SAF Programme Management***

***Second Arab Forum for Environmental Protection in the Arab
Civil Aviation Industry***

Marrakech, 26th & 27th February 2024



Leading sustainable aviation



2030

- Reduce **by 63% Scope 1 & 2** industrial emissions
Target validated by the Science Based Targets initiative (SBTi)
- Offer **100% SAF capability** on our commercial aircraft

2035

- Reduce **by 46%** the CO₂ emissions intensity generated by our commercial aircraft (**Scope 3 - Use of Sold Products**)
Target validated by the Science Based Targets initiative (SBTi)
- Be the **1st major manufacturer** to offer a hydrogen-powered aircraft

2050

Support the aerospace industry's decarbonisation roadmap, set by ICAO, ATAG and IATA, to reach 'net-zero carbon emissions' by 2050

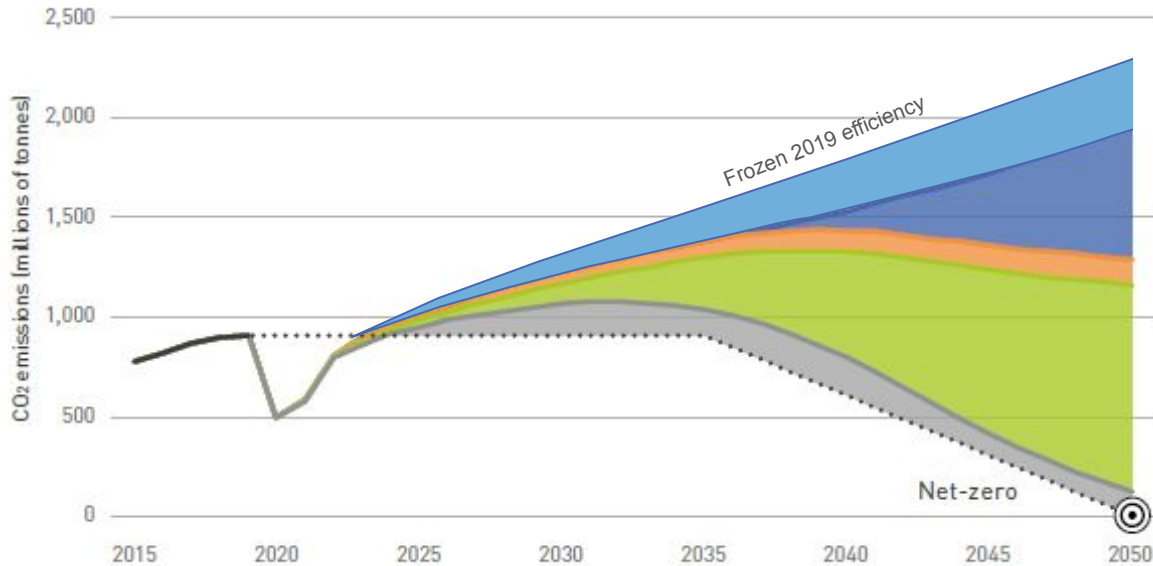




Aviation CO₂ reduction roadmap



A multifaceted approach is required to achieve industry ambitions



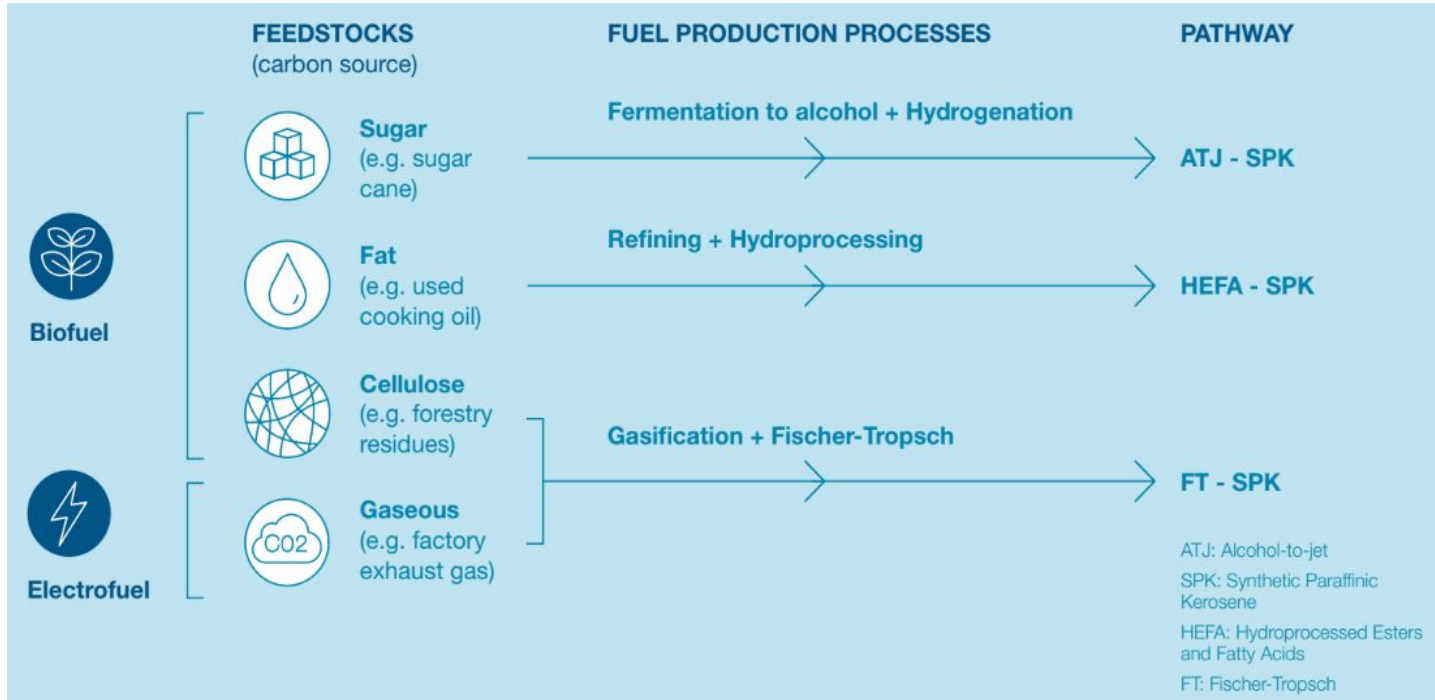
Latest generation aircraft

Disruptive technology

Operations & Infrastructures

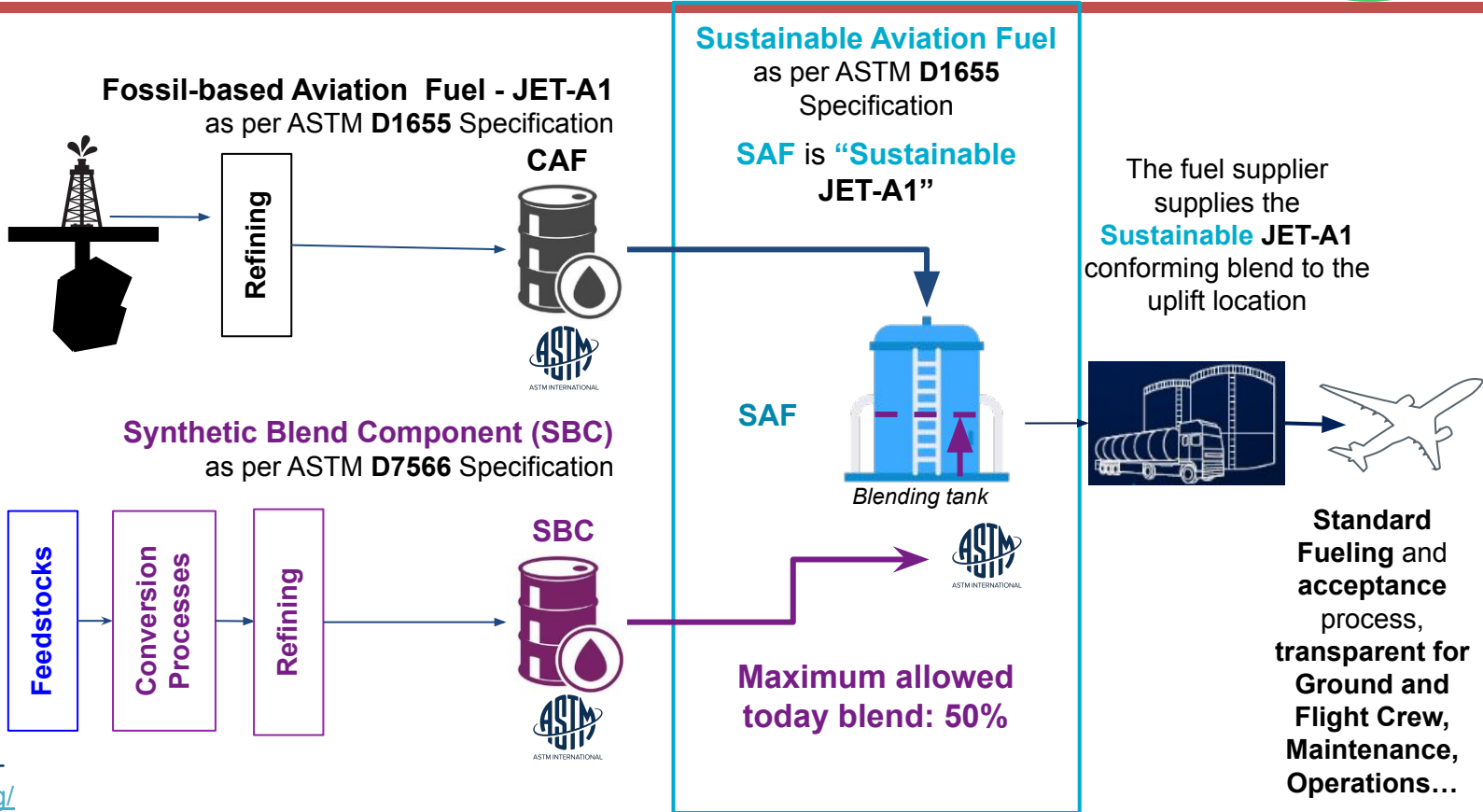
Sustainable Aviation Fuels

Carbon offsetting and capture



The 3 main conversion processes are based on fat hydroprocessing (HEFA), sugar-to-alcohol fermentation (ATJ), and “gasification/Fischer-Tropsch” process (BTL , PBTL, PTL).

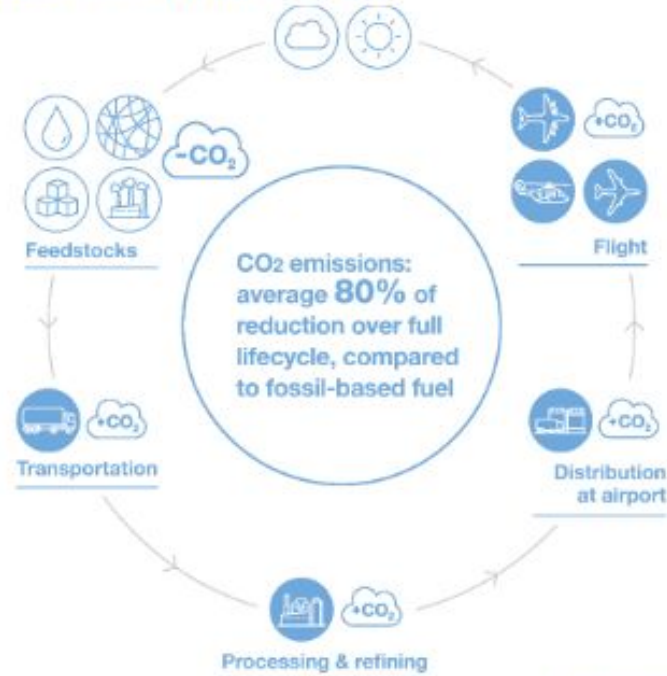
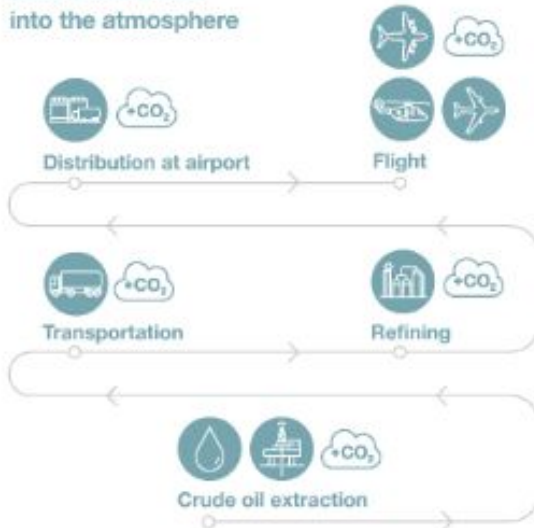
Blending up to 50%: how does it work ?



Carbon life cycle

Fossil based Aviation fuel vs 100% Sustainable Aviation Fuel

Fossil-based fuel adds EXTRA CO₂ into the atmosphere



AIRBUS



Policy & Regulation

- Highly fragmented and missing in most parts of the world, including on reporting
- Sustainability criterias on feedstock are uncertain and volatile



Feedstock



- Competition with other sectors
- High volatility in price
- Collection can be a challenge



Supply

- Credit risk from airline customers
- SAF production projects not yet operational
- Low technology maturity for some pathways
- Technical requirements to go beyond 50% blend



Demand

- High prices of SAF
- Mandates seen as a threat to travel demand and to the level playing field
- Voluntary demand not visible nor robust enough



Potential Airbus levers to address those challenges



Advocacy



Demand aggregation



Investment







Engineering/technical support



Airbus' levers of actions on SAF



Levers	Description
1 Advocacy 	Efforts with regulatory bodies and industry associations to develop consistent frameworks for SAF developments
2 SAF technical leadership 	Support of SAF production pathways approval and use in aircraft
3 Demand support 	Connecting the dots, acting as intermediary to help the revenue line of projects and customers find SAF
4 Investment 	Participation in SAF projects to accelerate the concept phase



Support the development of a scaled SAF market

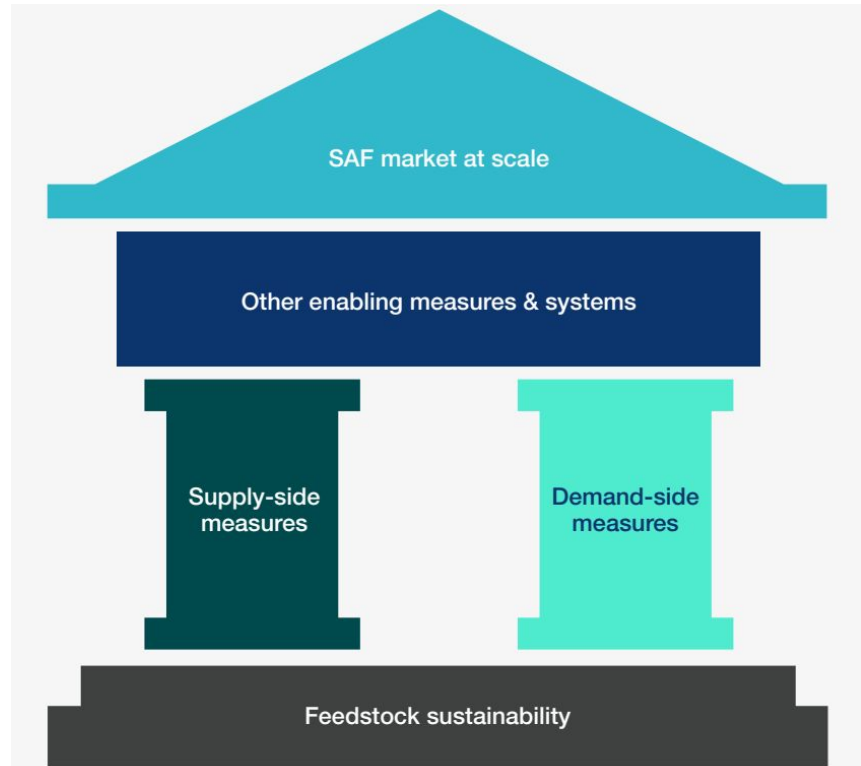


“Policy-makers will need to consider the most appropriate combination of policy options to address their unique national needs”

WEF

- ↳ Taking into account geographic, economic, social and political characteristics
- ↳ Planning and implementing in a coordinated way a range of supply, demand and enabling policy instruments

Our objective is for every country to have a SAF policy implemented in 2030



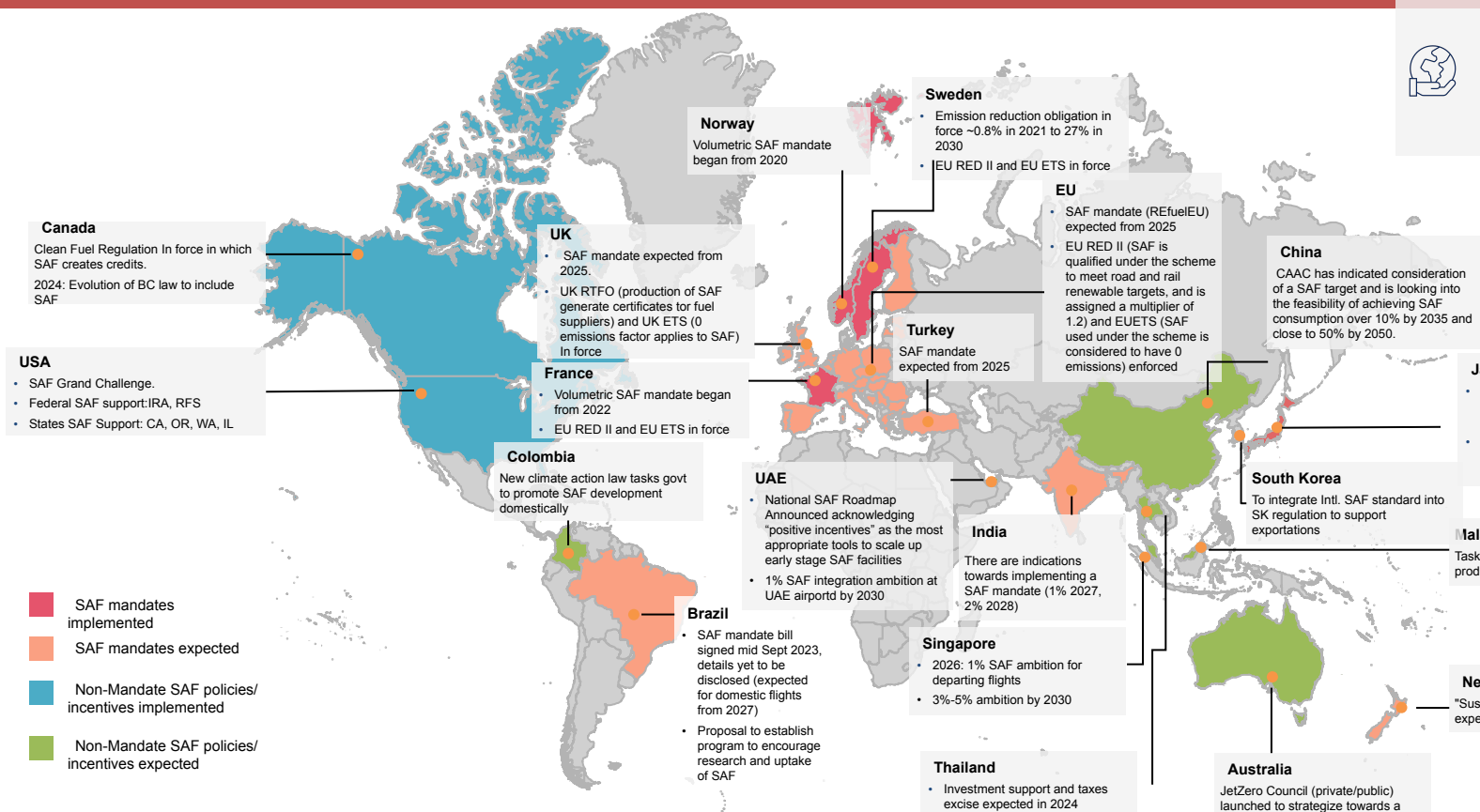
Source: WEF, *Clean Skies for Tomorrow: Sustainable Aviation Fuel Policy Toolkit*, 2021



Airbus view on policies being developed to structure the SAF market(s)



CORSIA
compensation scheme implemented in 150 countries starting in 2027



Routes to 100% Sustainable Aviation Fuel

COMPATIBILITY

AROMATICS

BENEFITS

AIRCRAFT IMPACT

PROCESS



Active support for both solutions



JET A1*

“Drop-in”

Yes

CO2 emissions reduction
some non-CO2 benefits (TBC)

None
(conforms to Jet A1 spec)

Support ASTM process

Revised specification expected from ~2024-2025



JET X**

“Non Drop-in”

No

CO2 emissions reduction
enhanced non-CO2 benefits (TBC)

TBD

Lead ASTM process
Non-CO2 effects research,
Aircraft systems compatibility testing

Aircraft capability targeted by 2030

*Maximize the environmental benefits
Maximize fuel availability and fleet coverage*

An extensive flight test programs for JET-X research to understand and anticipate the potential aircraft and operational impacts

* 100% SAF with revised Jet A1 specification
** 100% SAF with new Jet A1 specification



Airbus partnerships on SAF expanding worldwide



15 July 2021

Airbus joins Canada's SAF+ Consortium to accelerate the development of a new Sustainable Aviation Fuel technology



30 November 2022

Airbus and Neste join forces on SAF development to decarbonise aerospace



21st Nov 2023

ICAO and Airbus to explore deployment of sustainable aviation fuels in South America



Le Bourget, June 22, 2023

LanzaJet | AIRBUS

Airbus and LanzaJet to Collaborate on Sustainable Aviation Fuel

09 November 2022

Airbus and partners facilitate SAF commercial flights in China



19 June 2022

Qantas and Airbus joint investment to kickstart Australian biofuels industry



30 March 2023

Queensland biofuel refinery to turn agricultural by-products into sustainable aviation fuel



12 September 2023

Airbus partners with DG Fuels to foster sustainable aviation fuel production in the United States

The partnership will support the scaling of promising technology to produce sustainable aviation fuels from sustainable waste and residues.





In a Nutshell



SAF is a major pillar of the aviation industry's decarbonisation roadmap

- **It can be used in today's aircraft**
- **Brings substantial reduction in carbon emissions over its life cycle compared to kerosene**
- **Several production pathways exist, but none is a silver bullet**
- **Several challenges exist for SAF to be produced and used in large quantities, required to decarbonise our industry**

Airbus is committed to SAF

- **Use SAF for our own operations to meet our own decarbonisation targets (SBTi commitment)**
- **Influencing the SAF ecosystem is key to ensure aerospace becomes sustainable**
- **We pioneer sustainable aerospace as we contemplate using innovative levers of actions**



Thank you

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