



eSAF in Europe: Where does Luxembourg stand?

Ramping-up EU H₂ Economy
13.07.2026



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Ministère de la Mobilité
et des Travaux publics

Direction de l'aviation civile

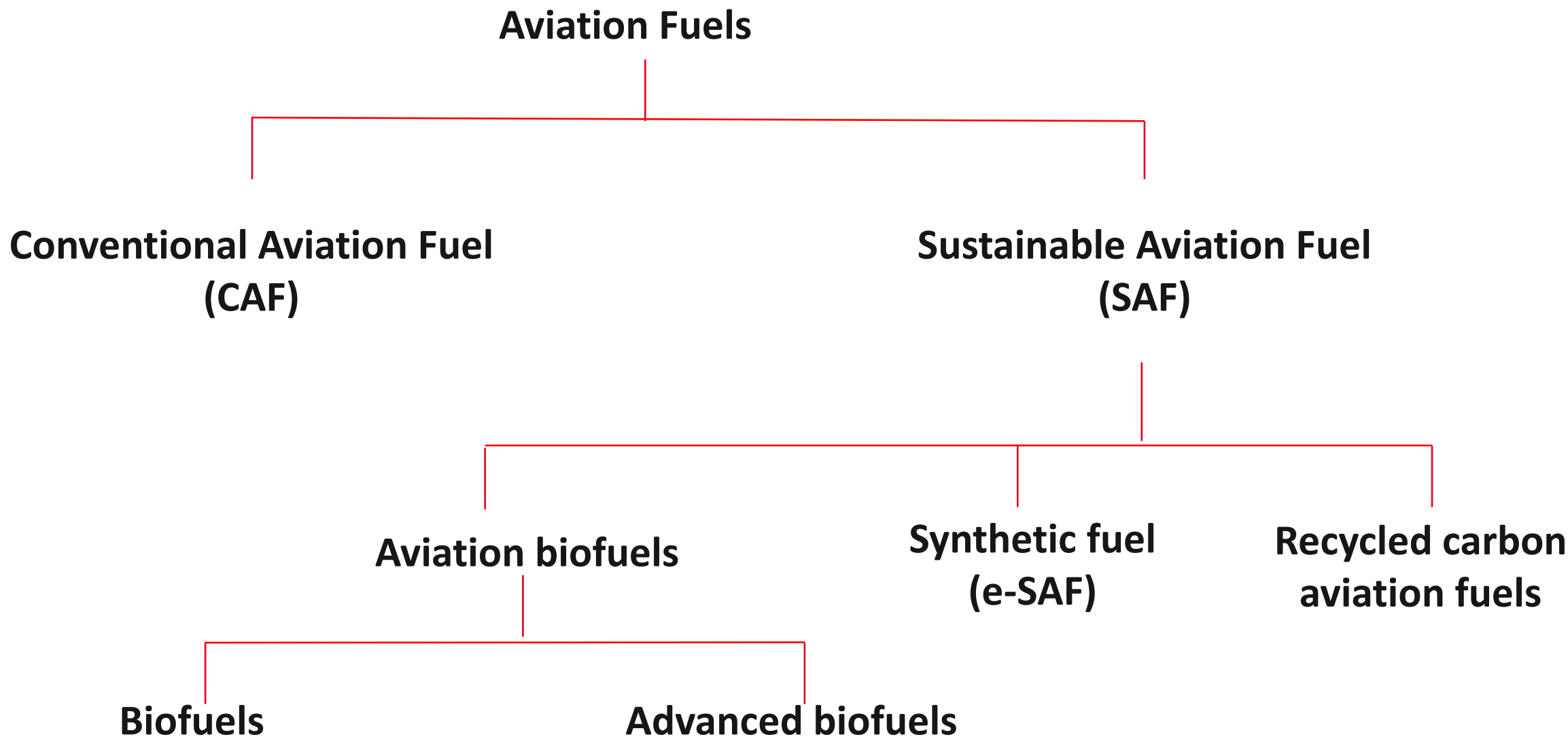
Agenda

1. Aviation sector
2. Aviation fuels
3. ReFuelEU 2023/2405
4. eSAF
5. eSAF in Luxembourg



Aviation sector

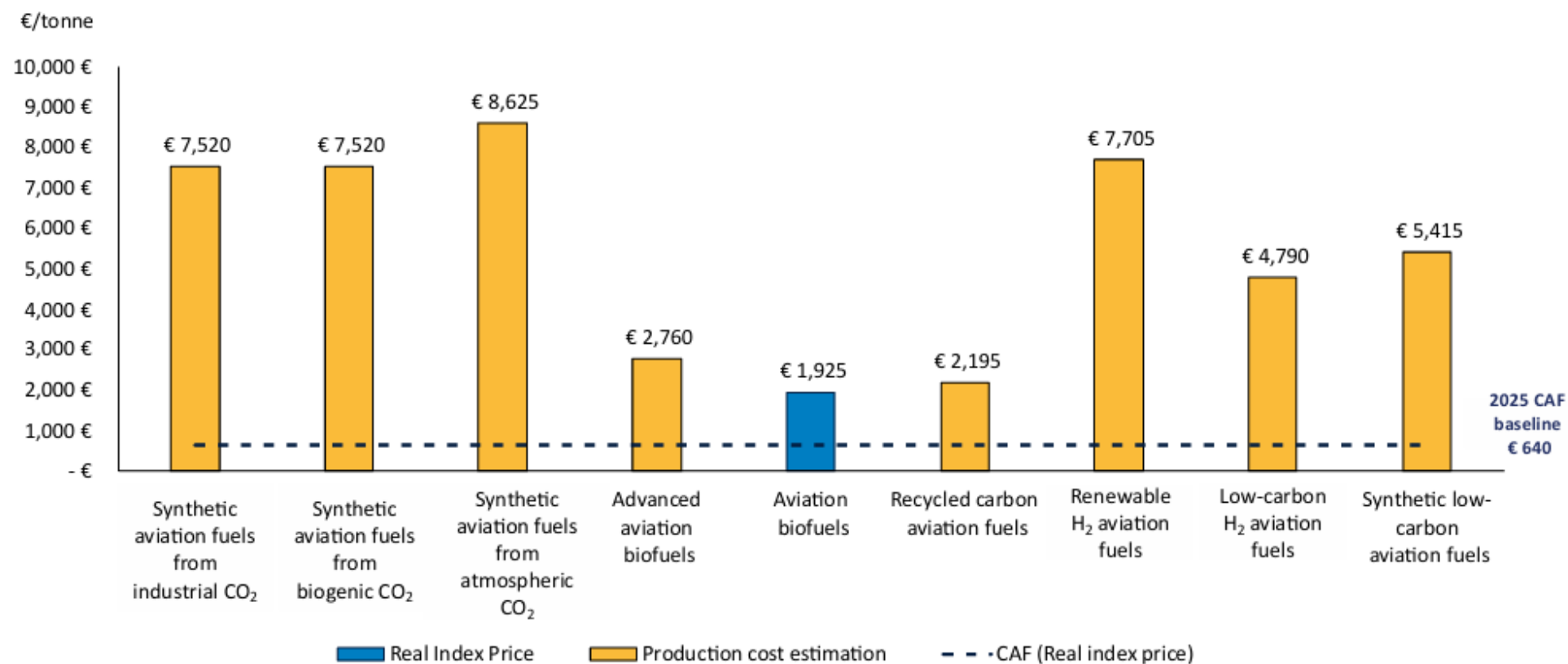
- 2.5% of global CO₂ emissions worldwide
- EU27 +EFTA aviation = 12% of transport GHG emissions; 4% of total GHG emissions
- Hard-to-abate sector; without decarbonization levers, emissions will continue to rise
- SAF as the key lever for aviation decarbonization





EASA reference prices

► **Figure 1: 2025 reference prices per RFEUA aviation fuels subcategory**





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ReFuelEU

(EU) 2023/2405



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Administration de l'environnement



Union Airports

≥ 800.000 passengers
≥ 100.000 t freight

Art. 6 and Art. 7

SAF access facilitation + H2, electric



Aircraft operators

> 500 passengers flights
> 52 all-cargo flights

Art. 5 and Art. 8

No to the economic tankering



Aviation fuel suppliers

aviation fuel suppliers
supplying to Union Airports

Art. 4 and Art. 10

SAF mandate



ReFuelEU SAF & eSAF Mandate

Year	SAF	of which eSAF
2025	2%	-
2030	6%	1.2%
2035	20%	5%
2040	34%	10%
2045	42%	15%
2050	70%	35%

Meeting the SAF mandate could cut the net CO₂ emissions up to 47% in 2050



eSAF

- = electro-Sustainable Aviation Fuel/ synthetic aviation fuel (e-fuel)
- renewable fuel of non-biological origin/RFNBO (Art. 3(11) RFEUA; 2(36) RED)
- drop-in fuel (compatible with existing aircraft and infrastructure)
- not limited by biomass availability

How?

- Renewable energy, electrolysis, **green H₂**; **green H₂** + captured CO₂ ^{RWGS} ^{CO & H₂} → syngas
- FT synthesis → synthetic crude → upgrade → **eSAF**

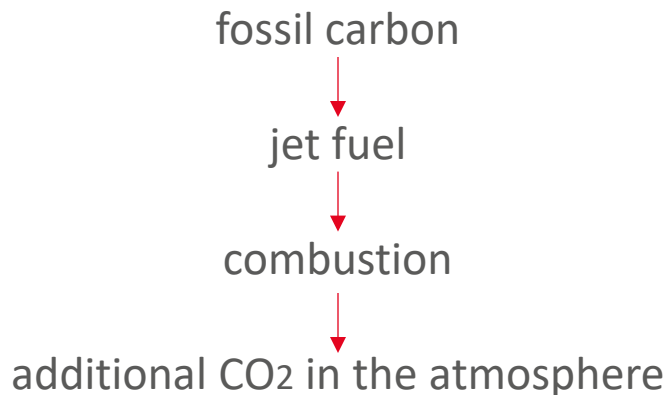
- *High cost, energy-intensive H₂ production, big renewable electricity demand, grid and infrastructure requirements*
+ high long-term decarbonization potential for aviation, very low lifecycle emissions, compatibility with existing infrastructure



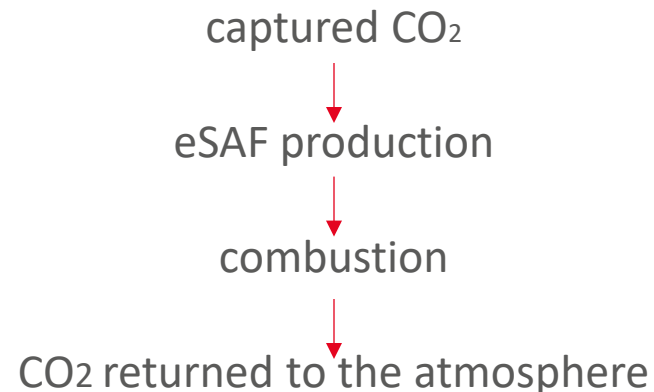
eSAF

- The climate benefit of SAF and eSAF does not come from lower CO₂ emissions during combustion
- Jet A1 = 89 gCO_{2e}/MJ; SAF/eSAF = 60-90% reduction

Jet A1



eSAF

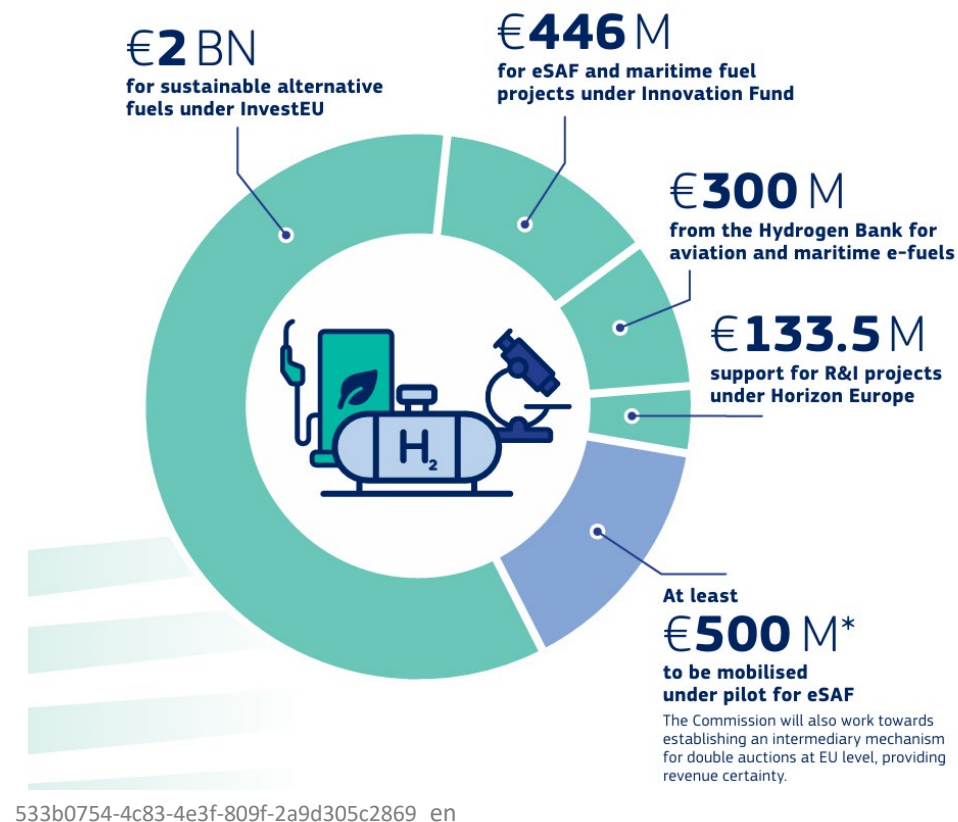




eSAF Luxembourg

- First Movers Alliance (3 meetings, 1 in LU/MECO) 2025
- STIP (Sustainable Transport Investment Plan) Nov 2025
a roadmap to accelerate the energy transition of aviation and maritime sectors

Key investment actions



eSAF Early Movers Coalition/ eSAF double sided auction mechanism



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eSAF Luxembourg



Photos and videos - Consilium

- eSAF Early Movers Coalition of 8 Member States, Dec 2025
*Austria, Finland, France, **Germany, Luxembourg**, The Netherlands, Portugal, Spain*
- Objective: bridge the funding gap for eSAF projects, accelerate market deployment and support compliance with RFEUA mandates

• LU:



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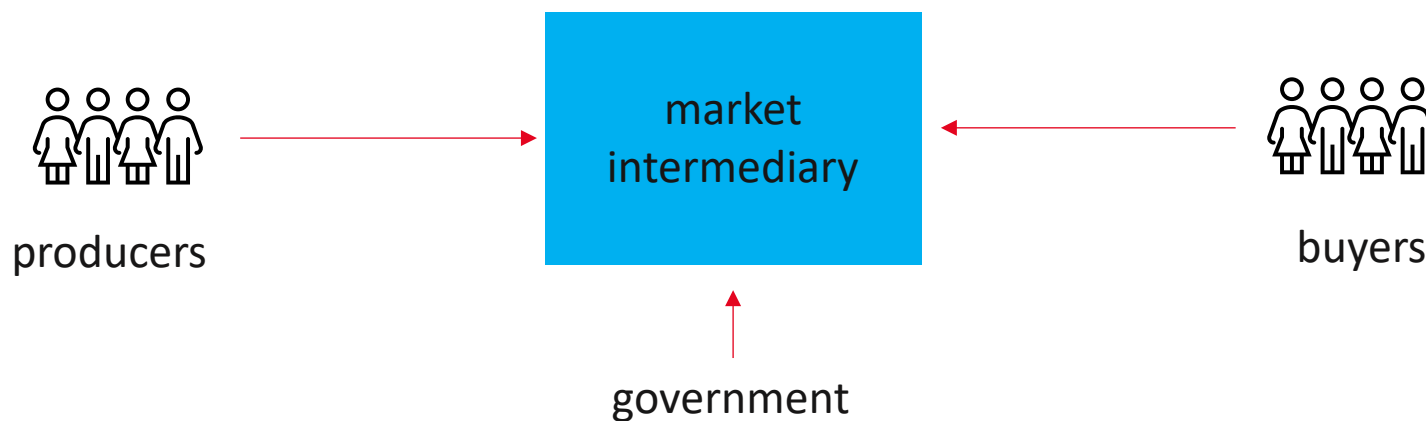
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- eSAF Funding Mechanism based on a double-sided auction mechanism



eSAF Luxembourg

- eSAF Funding Mechanism based on a double-sided auction mechanism



A double-sided auction matches eSAF producers and buyers through two separate competitive auctions. Producers compete to offer the lowest selling price, while buyers compete to offer highest purchase price. Public funding covers the remaining gap between the two prices.



eSAF Funding Scheme LU

(eSAF Early Movers Coalition)

- Total scheme budget (DE + LU) up to €2.059 billion (LU up to €59 Mio.)
- LU: public consultation [Public Consultation on eSAF Funding Scheme Survey](#)
- Objective: to gather stakeholder feedback to design an effective eSAF Funding Scheme that attracts investment and supports the scale-up of eSAF production in Europe

Table 1: example calculation of funded volume eSAF and resulting emission savings.

Parameters	LU eSAF funding scheme
Budget (EUR)	up to 59.000.000
EASA reference price (EUR/t)	7.520
Minimum funding volume based on EASA reference price (t)	7 846
GHG-emissions per tonne jet fuel burnt (t CO ₂ eq./t)[3]	3.15
GHG-emission saving factor by RFNBO-criteria (%)	70 (at least)
Total emission reductions (t CO ₂ eq.)	17.300



Thank you for your attention 😊

Elena SOBON, PhD

Responsable Environnement

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