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# How do SAF allowances work?

27 May 2025

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# Meeting Agenda

## Introduction to SAF allowances

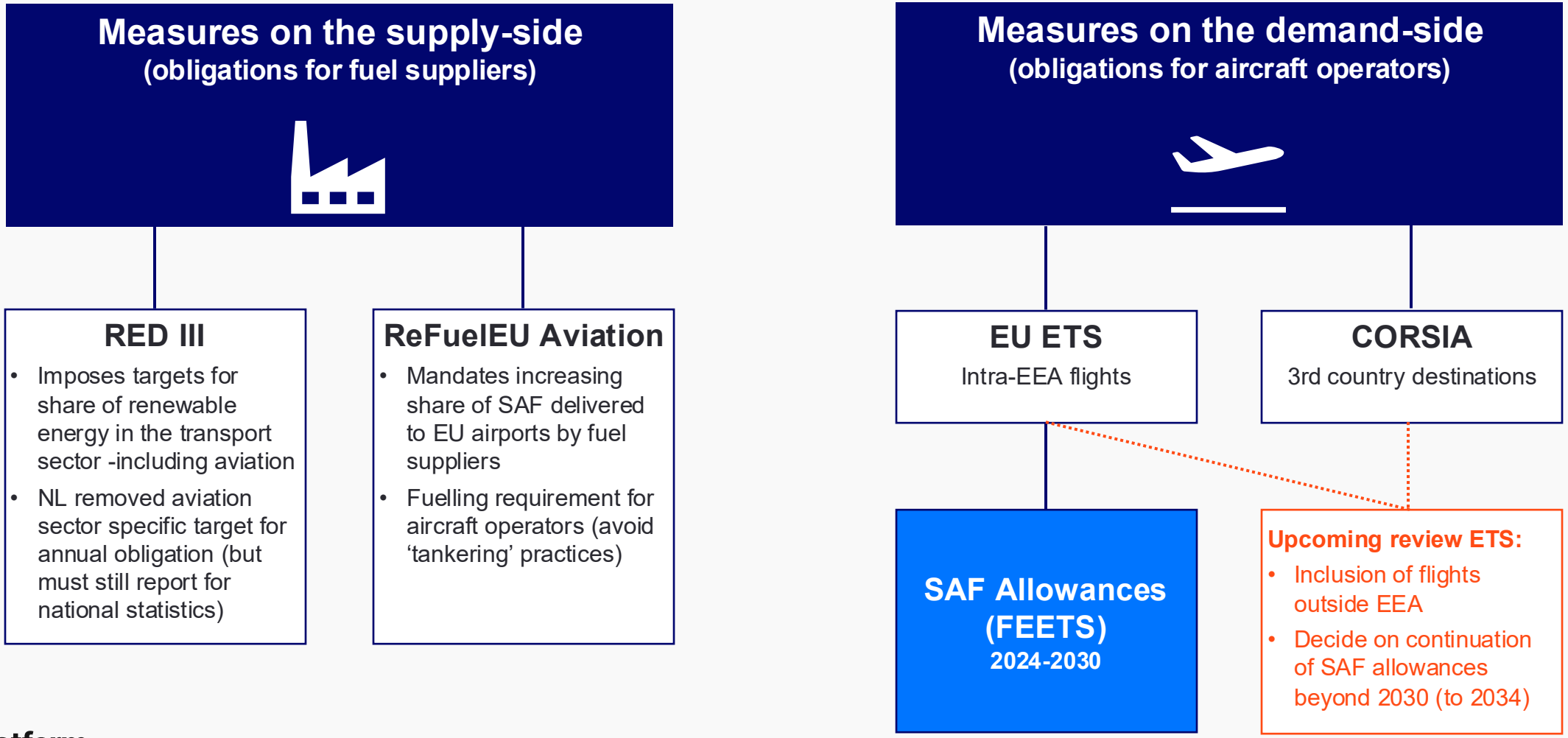
- Overview of policy instruments which support expansion of SAF market and uptake
- SAF allowances (FEETS): a new support mechanism under EU ETS to support the early uptake of SAF

## How do EU ETS allowances for SAF work?

- Exploring the core principles:
  - Bridging the price gap between fossil and sustainable aviation fuels
  - Which fuels will be eligible for FEETS support?
  - Determining the allocation of SAF allowances
- Reviewing the impact of the FEETS support mechanism:
  - SAF prices under the FEETS support mechanism
  - Will SAF allowances help to support the aviation sector meeting ReFuelEU Aviation mandates?
  - Are additional policy measures still required to support the SAF market?

## Discussion and questions

# Overview of policy measures which support SAF

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# Introduction SAF allowances: an EU ETS aviation support mechanism

## EC introduced new support mechanism to accelerate the roll out of SAF

- To incentivise the early uptake of alternative aviation fuel and support aircraft operators to use eligible aviation fuels on routes covered by EU ETS
- Commission adopted a Delegated Regulation* on Feb 6, 2025
  - Revision of ETS directive included a support mechanism involving setting aside ‘SAF allowances’
  - Mechanism now known as ‘Fuels Eligible for ETS’ (FEETS) support

## A total of 20 million EU ETS allowances reserved for SAF between 2024-2030**

- From total number of allowances to be allocated in respect of aircraft operators
- Awarded to aircraft operators who demonstrate the use of eligible aviation fuels
- Covers flights in the scope of EU ETS – up to end of 2026, covers intra-EEA flights
- Allowances equal to an approximate value of €1.5 billion

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* Delegated Regulation C(2025)681, supplementing Directive 2003/87/EC of the European Parliament and of the Council by laying down detailed rules for the yearly calculation of price differences between eligible aviation fuels and fossil kerosene and for the EU ETS allocation of allowances for the use of eligible aviation fuels

** For reference, the aviation cap for the EU ETS was 28.9 million allowances in 2024. Since 2013, the aviation sector has received most of its allowances for free but there will be a phase out of free allowances decreasing by 25% in 2024, 50% in 2025 and fully phased out by 2026.

# Core principle of the support mechanism: bridge the price gap

**Quantity of allowances is determined by the price gap**


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- Annual average market price of eligible fuel


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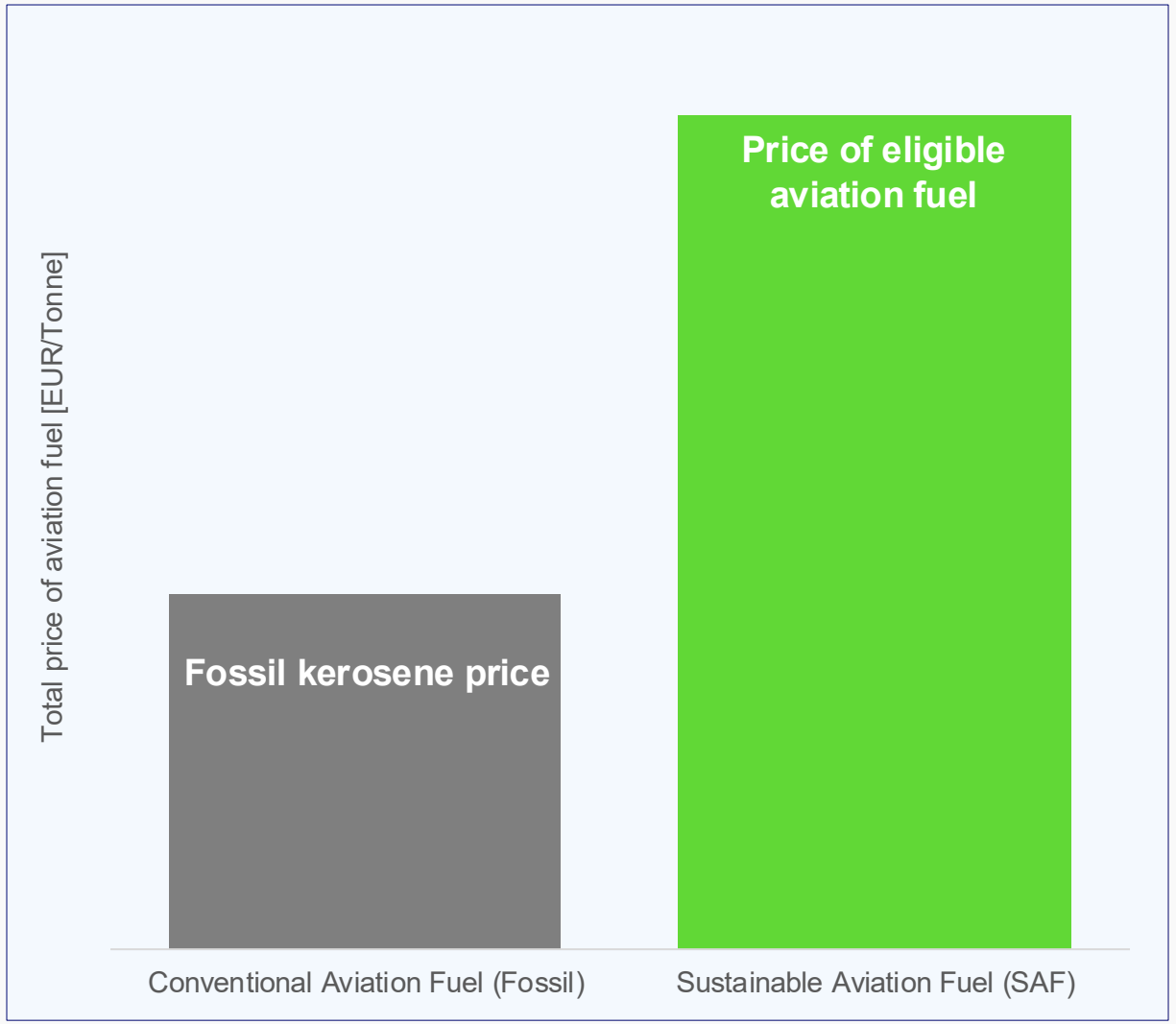
- Annual average market price of fossil kerosene

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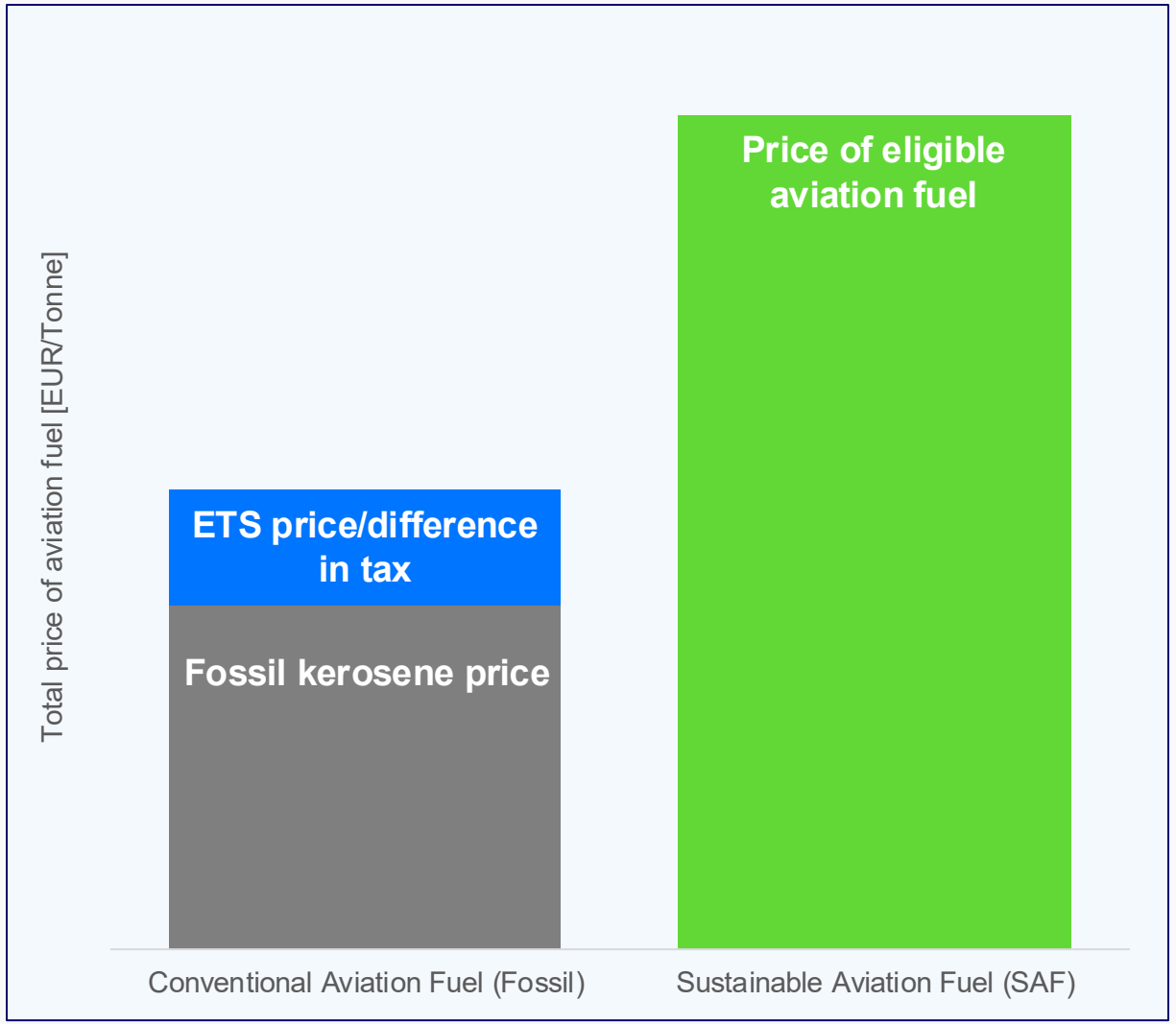
**ETS price/difference in taxation**

- Corresponding price for ETS allowances
- Energy Taxation Directive (not in force, EC proposal)

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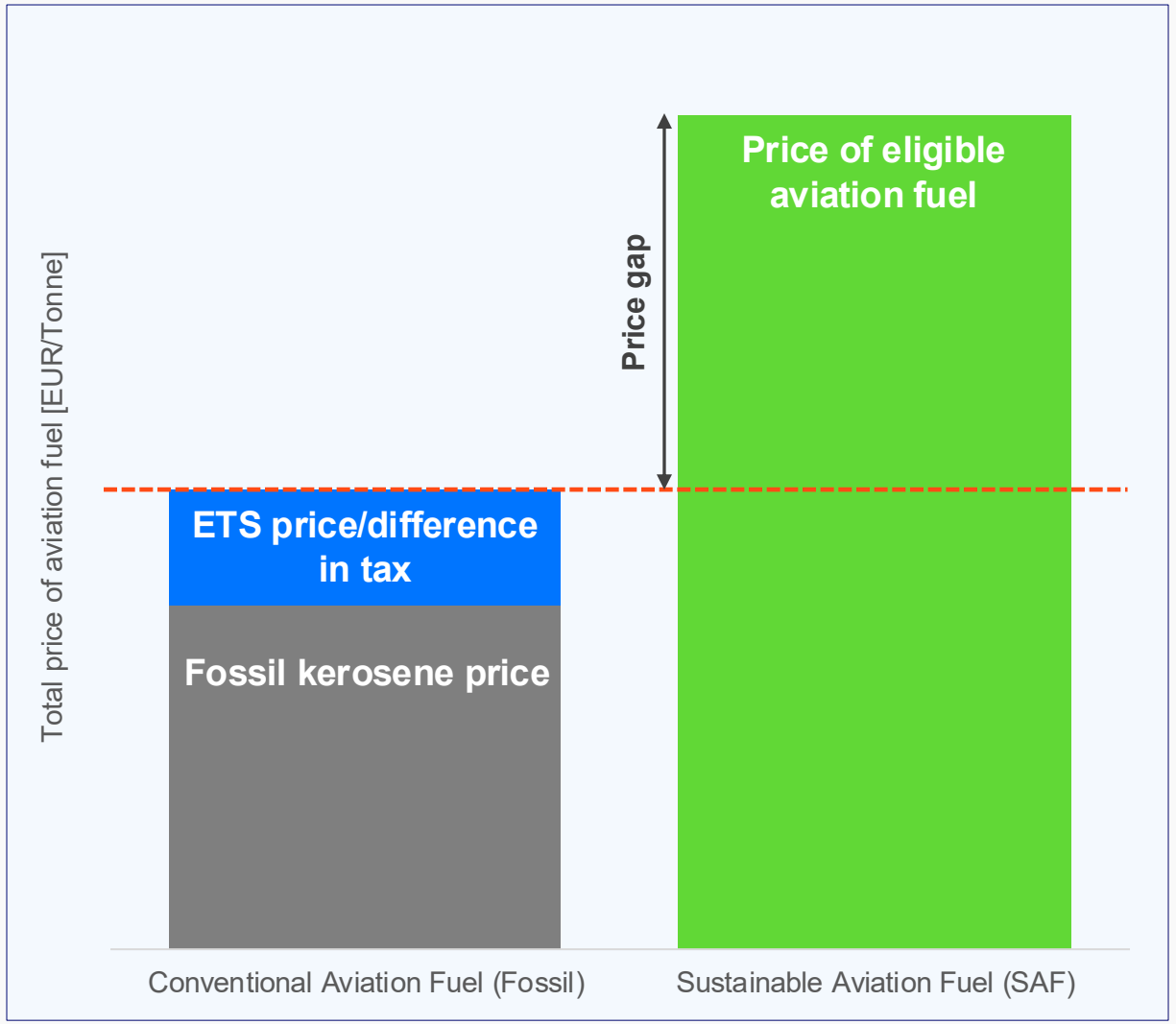
**=**

**Price gap**

- Price gap between fossil and eligible fuels
- Determines allocation of allowances to aircraft operators

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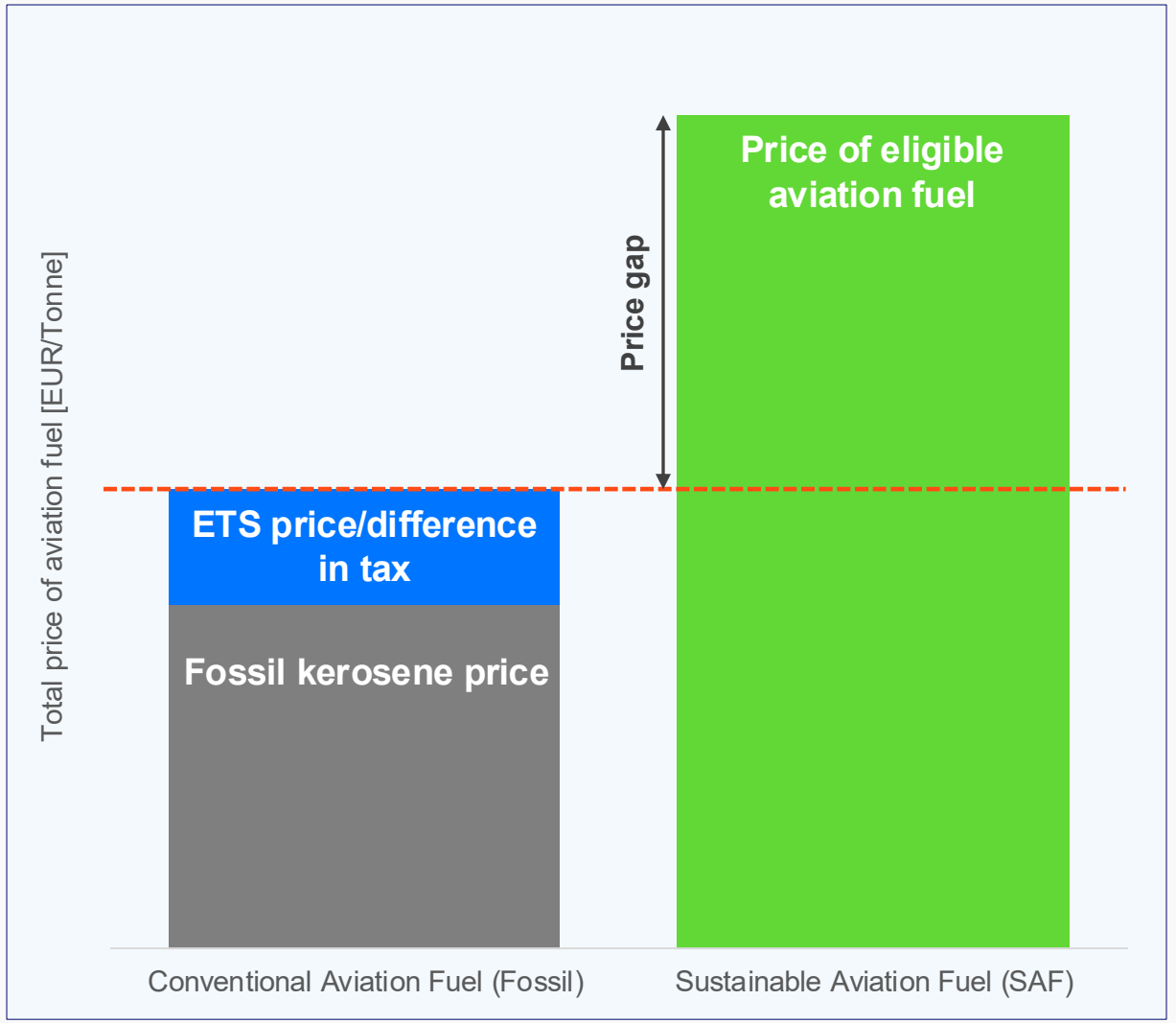
# What factors can influence the price gap?

**Several factors which may influence the price gap in coming years:**

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# What factors can influence the price gap?

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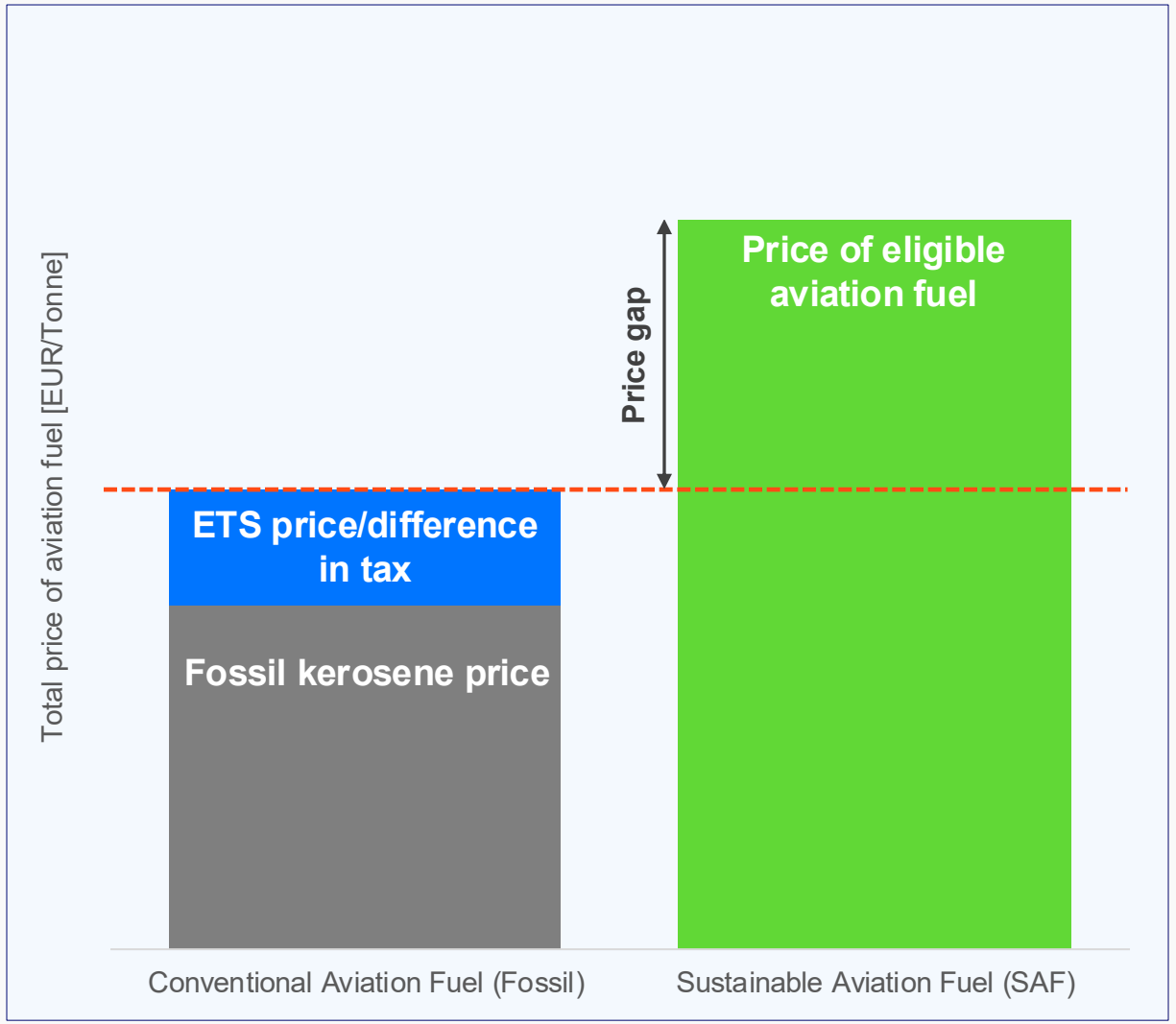
1. **Changes in SAF prices**
   - Reduction - investments into SAF technologies, efficiency gains, policy instruments (subsidies)
   - Increase – upwards price pressure from policy mandates

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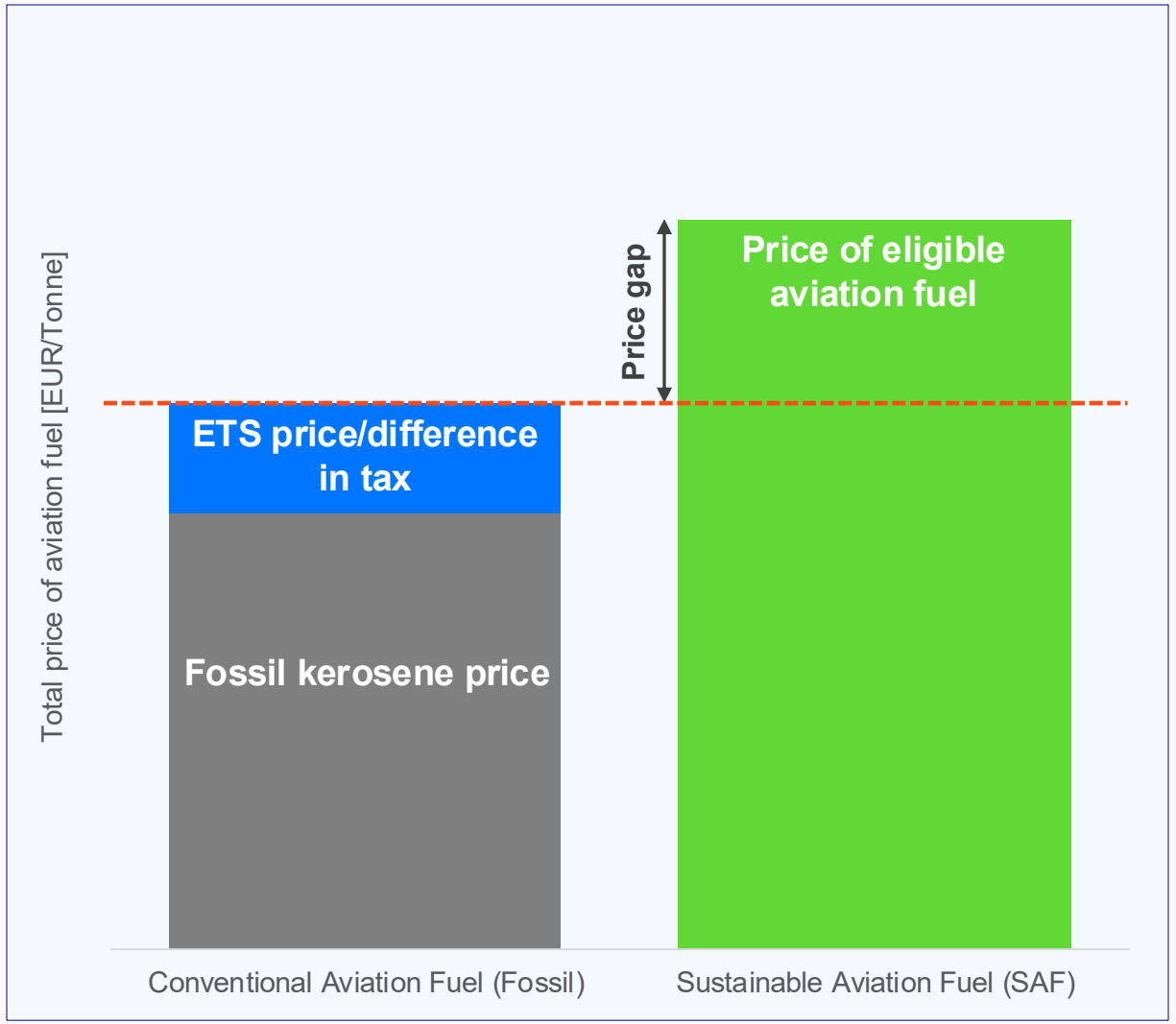
2. **Changes in fossil prices**
   - Volatile kerosene prices: regulations, supply factors

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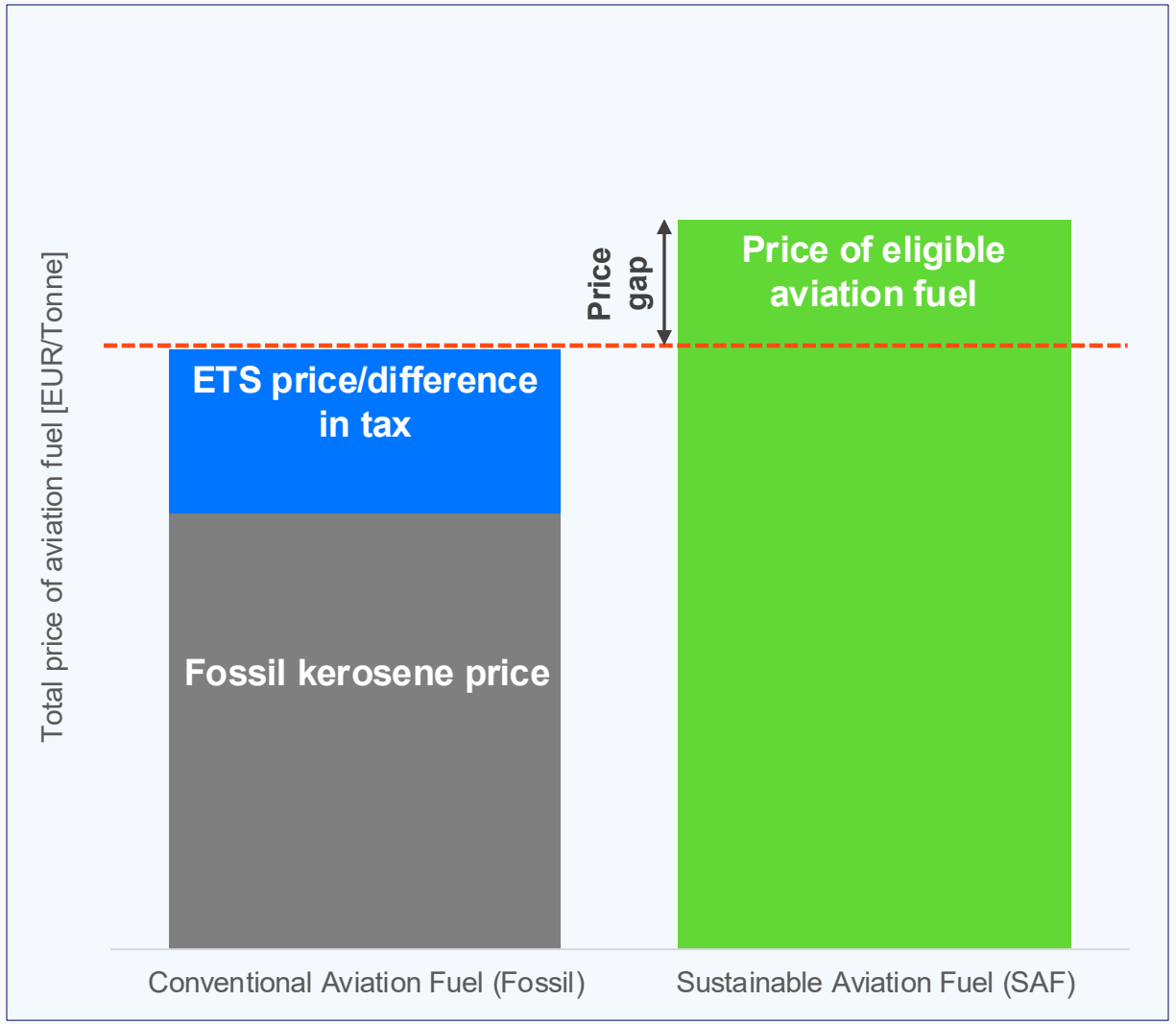
3. **Changes in taxation**
   - Higher ETS price, declining ceiling and phase out of free allowances
   - Energy Taxation Directive may come into force?

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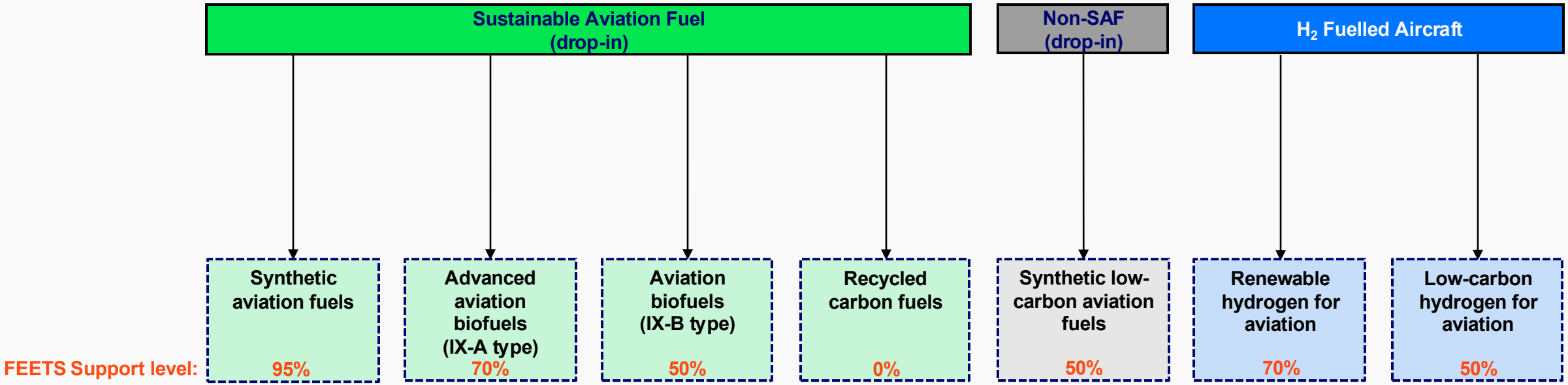
# FEETS eligible fuels are those identified in ReFuelEU Aviation which are not derived from fossil: different levels of FEETS support are applied

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Visual based by analysis of studio Gear Up
100% support level is provided for non-fossil fuels deployed at small airports, in outermost regions

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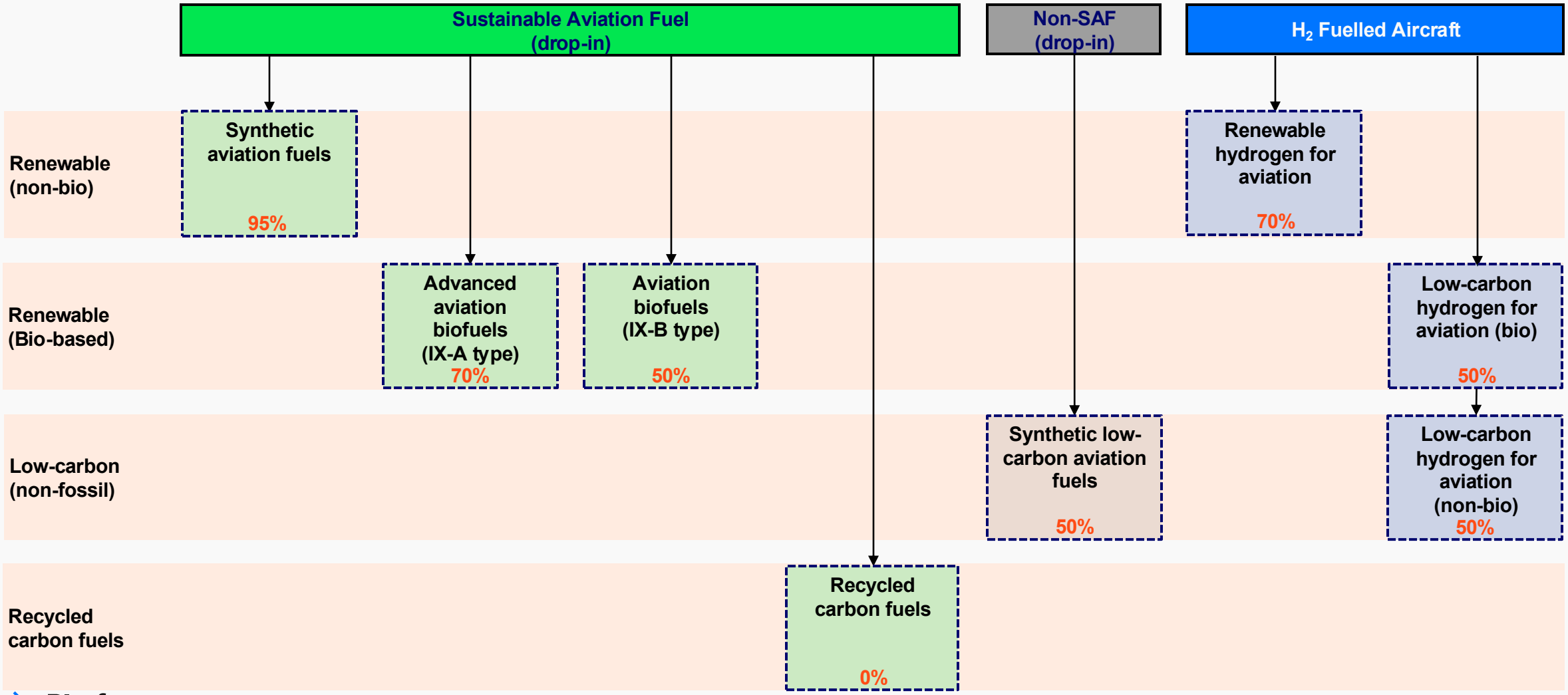


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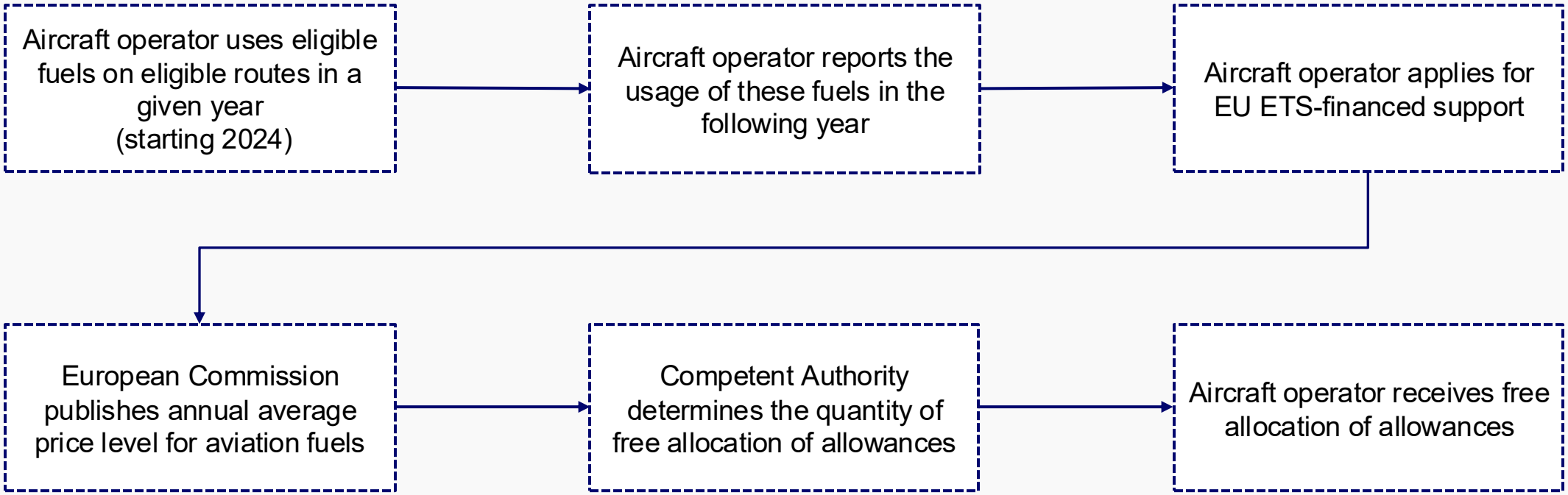
# Support awarded through allocation of allowances to aircraft operators

$$\text{Allocation of allowances} = \frac{\text{price difference x fuel volume used x support level}}{\text{Allowance price (EU ETS)}}$$

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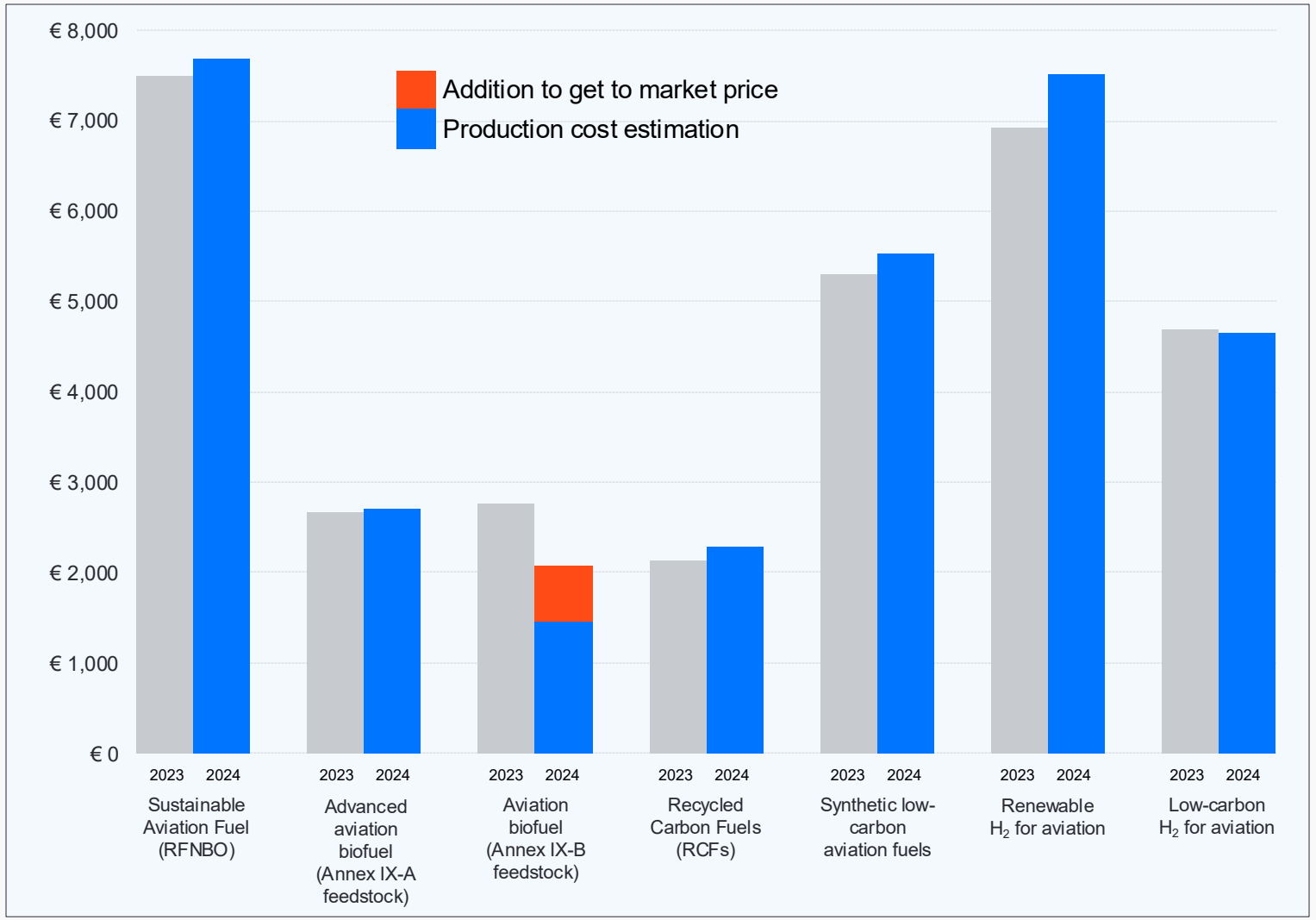
# How are prices of aviation fuel determined under the support mechanism?

## Price based on European Aviation Safety Agency (EASA) annual report

- Prices for FEETS relate to average aviation fuel prices
- When available market price must be reported- currently only aviation biofuels
- If market price data not available, actual prices paid can be reported (with supporting documentation), or
- Production cost estimates can be used with 10% margin applied*




Source: EASA (2025) report, 2024 Aviation Fuels Reference Prices for ReFuelEU Aviation

*See Article 4 of Delegated Regulation on detailed rules on calculation of price difference between eligible aviation fuels and fossil fuels, margin provides a conservative estimate of the minimum selling price

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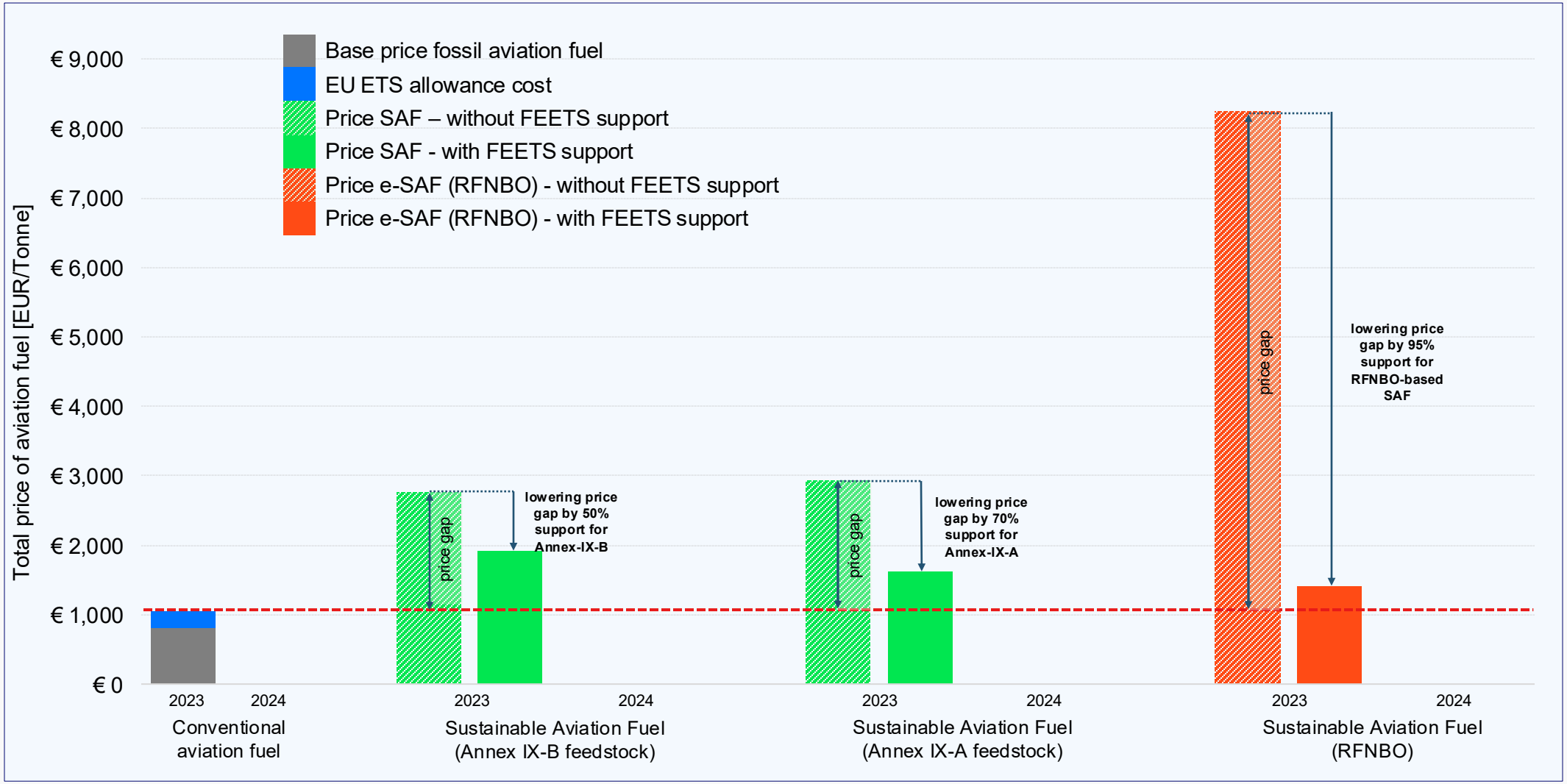
# SAF allowances: reducing the price gap between fossil and SAF (2023 prices)

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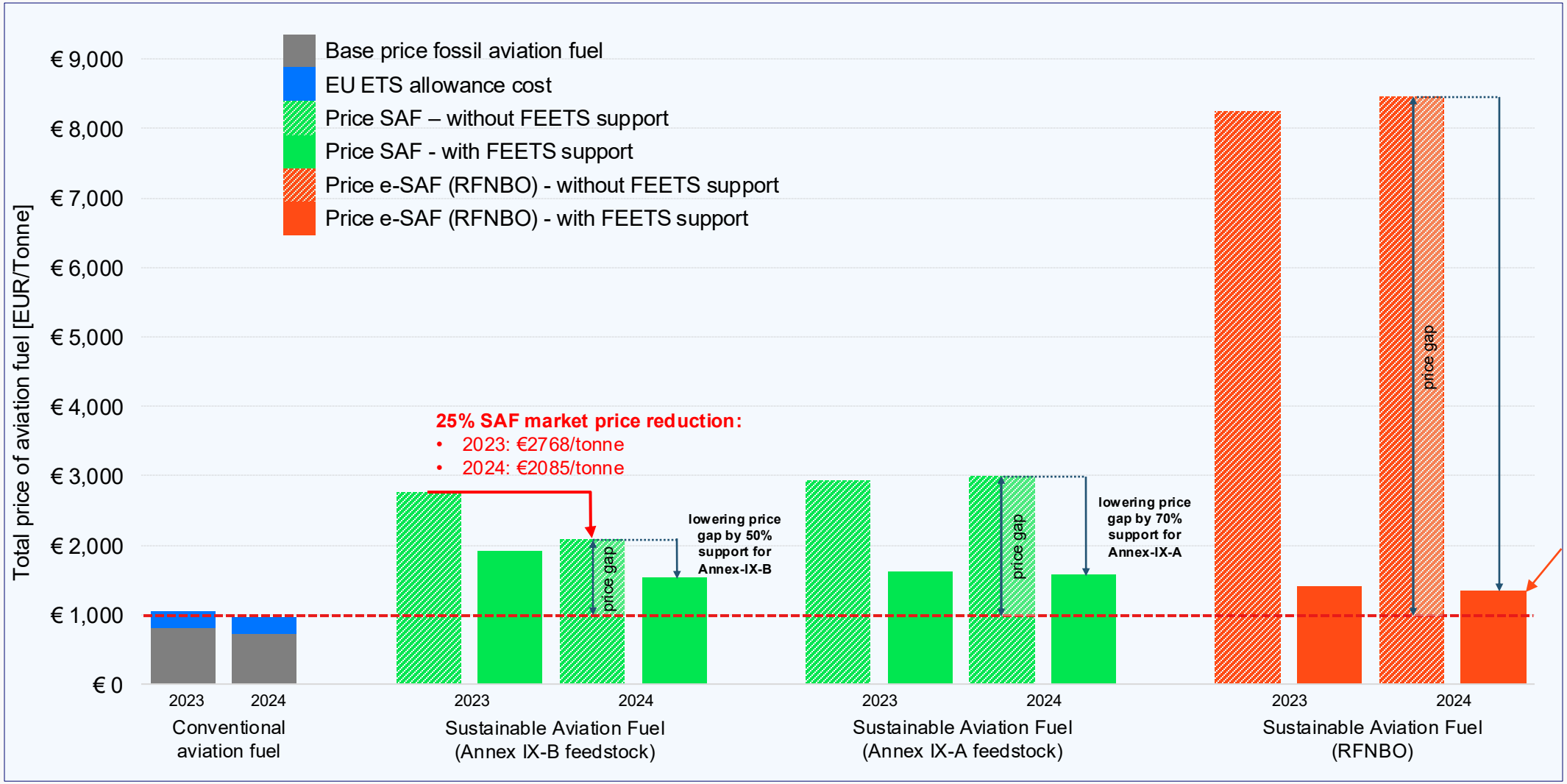
Source: Analysis of studio Gear Up, based on price data from EASA from 2024 and 2025 reports. The market price data for synthetic aviation fuel and advanced aviation fuel are based on production cost estimations provided in the report, and a 10% profit margin has been applied, which is based on the level specified in the EC Delegated Regulation. The EU ETS allowance cost is assumed at 75 €/tonne, based on an assumed average allowance price during the period of and the corresponding emission factor for fossil kerosene stated in the ETS Directive. All SAF options assessed in this analysis are assumed to be zero rated under EU ETS.

# Volatility shown in SAF prices: EASA 2024 prices used to determine FEETS




Resulting e-fuel price (with FEETS support) is lower than other aviation biofuels

How high could e-fuel prices rise to remain competitive?

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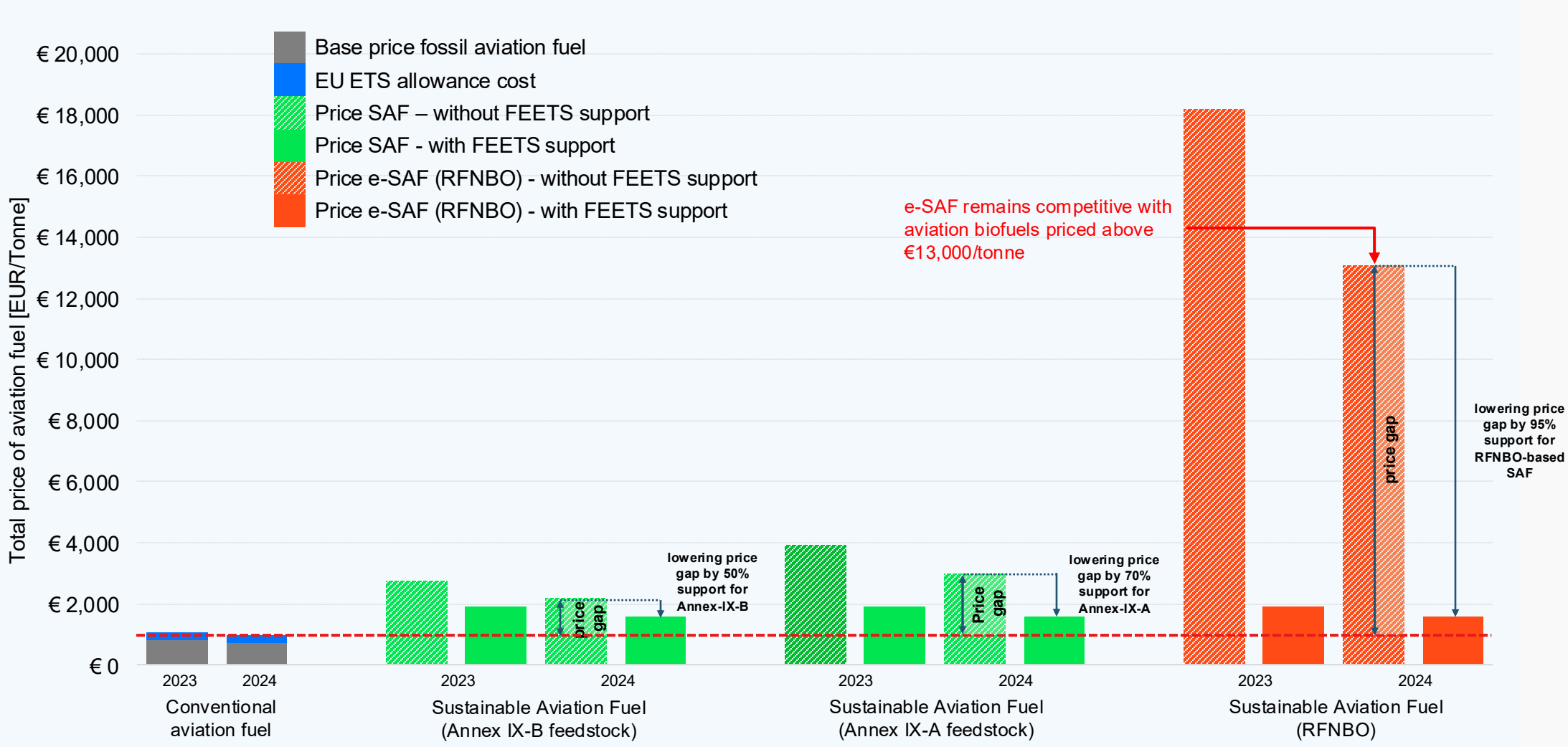
# SAF allowances: instrument does not establish a level playing field




Source: Analysis of studio Gear Up, based on price data from EASA from 2024 and 2025 reports. This scenario explores the case in which all fuels are sold at the maximum price level to realise the same price gap, after the aviation price mechanism has been applied.

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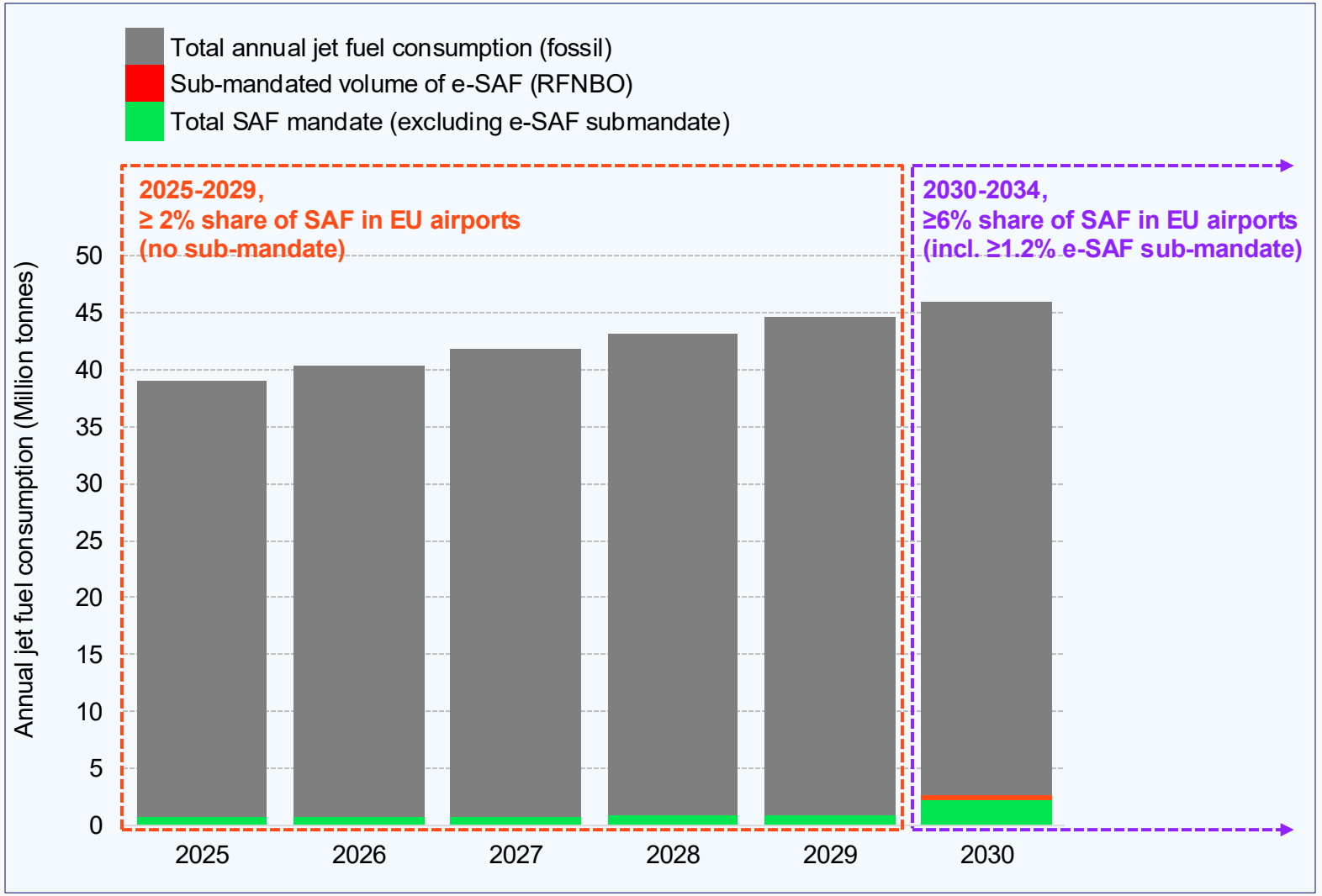
# FEETS support in the context of ReFuelEU Aviation

**RFEUA mandates minimum share of SAF**

- Fuels mandated by RFEUA can receive financial support under FEETS
- RFEUA applies a broader scope than EU ETS (also international departures)
- We expect SAF will mostly be used for domestic travel
- Incentive for EU airlines to use SAF on domestic flights:

1) Avoid ETS cost
2) Receive free allowances




Source: Analysis of studio Gear Up, Jet fuel consumption data is based on values presented in Eurostat energy balance data for international aviation. Fuel demand is based on a linear forecast to 46 million tonnes of jet fuel consumption in the EU by 2030, which is stated in the EASA (2024) market report on SAF and European impact assessment of ReFuelEU Aviation. Total SAF mandate and sub-mandate shown in the graph is based on the limits laid out in ReFuelEU Aviation, Regulation (EU) 2023/2405

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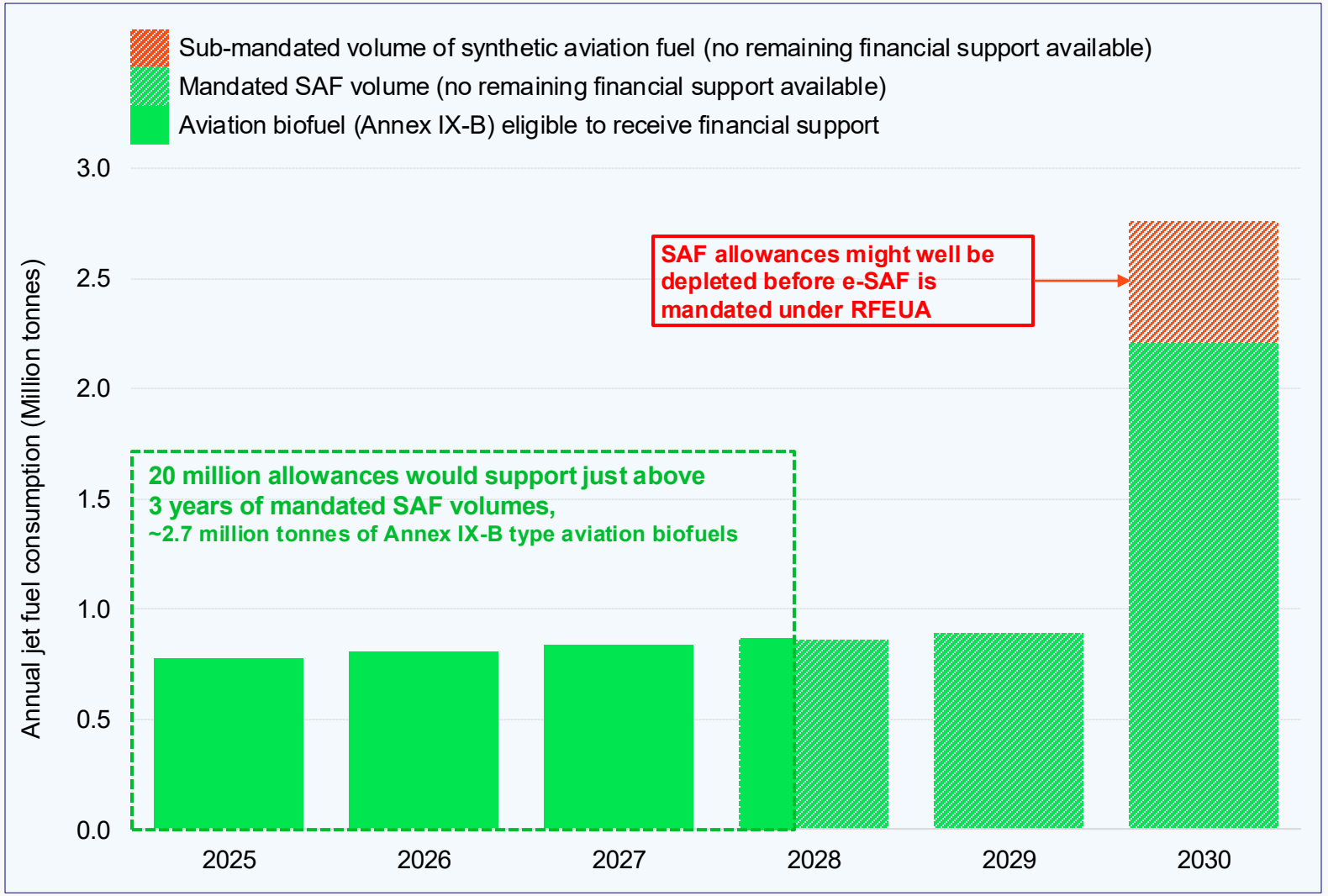
# SAF allowances only offer short-term price support

**20 million SAF allowances awarded on a 'first come, first serve' basis**

- Aviation biofuel (Annex IX-B) most commercially available SAF option
- We expect SAF allowances will mostly be allocated to these fuels
- Based on mandated volume, allowances remain available just above 3 years




Source: Analysis of studio Gear Up, explores the scenario where 20 million allowances are entirely allocated to Annex IX-B type biofuels. Assumes that SAF delivered to European market is used entirely for domestic aviation. Also assumes that the minimum mandated share of SAF is delivered to the market: i.e., no SAF delivered to the market in 2024 and no additional volumes.

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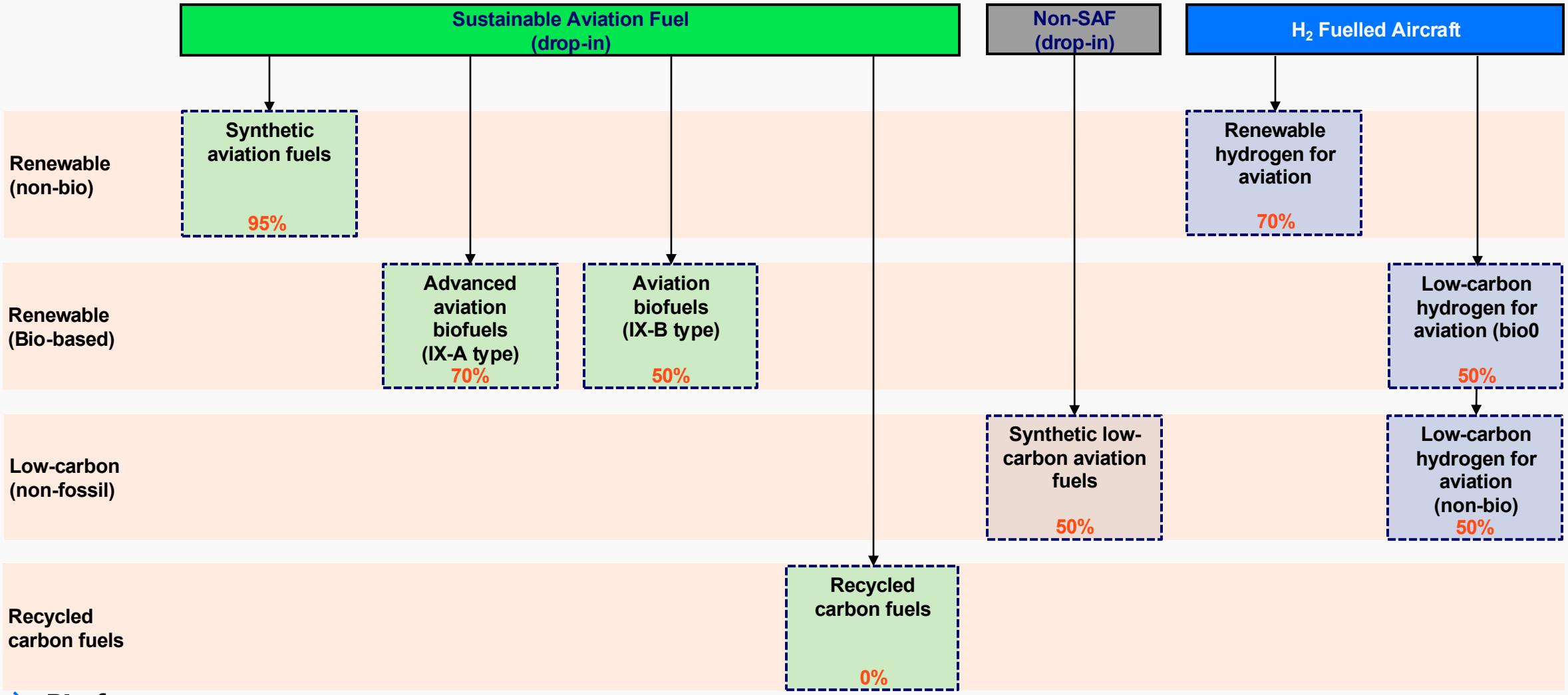
# We expect FEETS support mechanism will mainly support aviation biofuels

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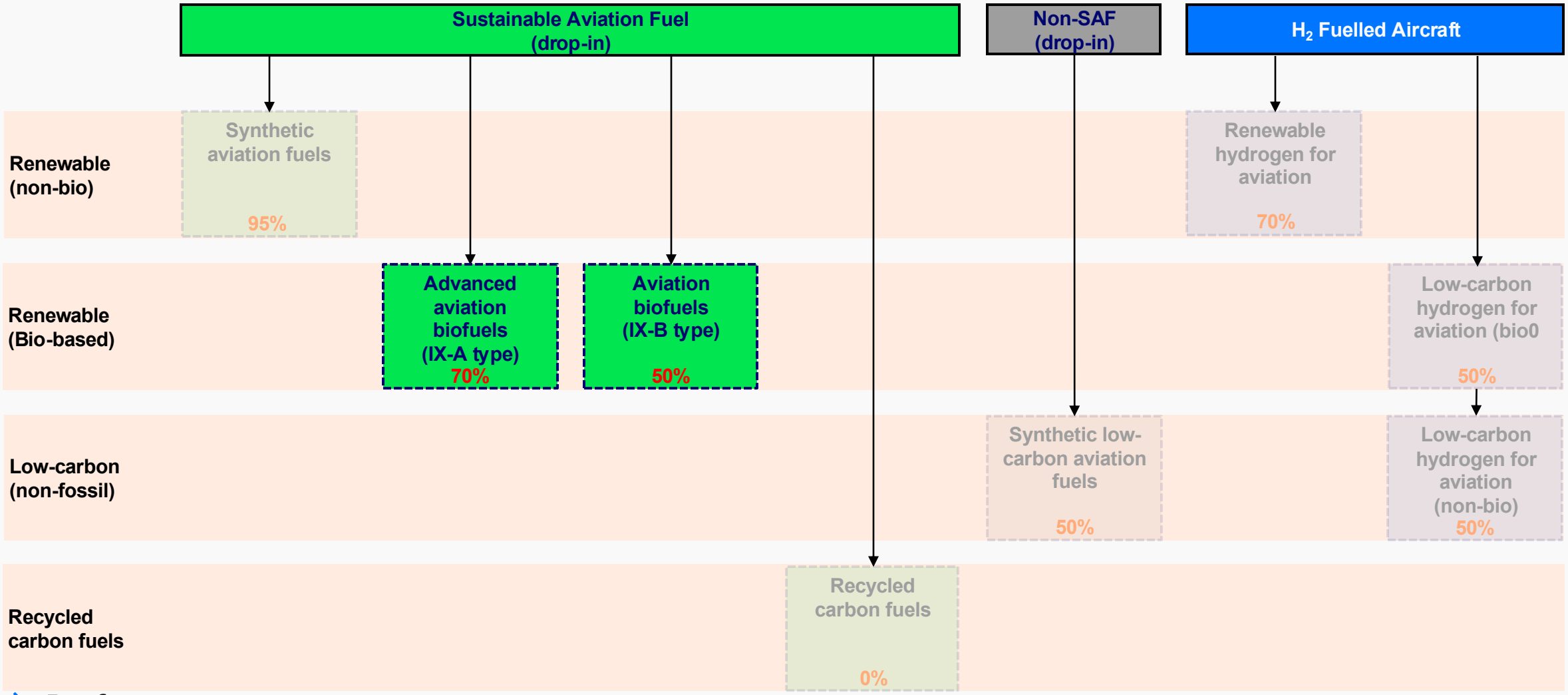


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# An outlook to the (average) price of aviation fuel 2025-2029

**Under current market conditions: 2% price increase for EU aviation fuel mix 2025-2029**

- Based on current SAF and EU ETS prices and RFEUA mandates*
- Under these market conditions, average aviation fuel price: €992/tonne

| Fuel type | Price (EUR/tonne) | Volume RFEUA (%) | Price share in one tonne of aviation fuel (EUR) |
|---|---|---|---|
| Conventional (fossil) aviation fuel + ETS price | €970 | 98% | €950 |
| Aviation biofuel (annex IX-B) | €2085 | 2% | €42 |
| Synthetic aviation fuel (RFNBO) | €7695 | 0% | €0 |
| | **Resulting price aviation fuel 2025-2029(EUR/tonne):** | **€992** | **2% price increase** |

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*Assessment based on price data published in EASA (2025) report, 2024 Aviation Fuels Reference Prices for ReFuelEU Aviation| Assumes ETS price €75/tonne CO2

# An outlook to the (average) price of aviation fuel with FEETS support

**With FEETS support: 1% price increase for EU aviation fuel mix**

- Based on price of SAF with allowances and RFEUA mandates*
- Under these market conditions, average aviation fuel price: €981/tonne

| Fuel type | Price (EUR/tonne) | Volume RFEUA (%) | Price share in one tonne of aviation fuel (EUR) |
|---|---|---|---|
| Conventional (fossil) aviation fuel + ETS price | €970 | 98% | €950 |
| Aviation biofuel (annex IX-B) | €1528 | 2% | €31 |
| Synthetic aviation fuel (RFNBO) | €1345 | 0% | €0 |
| | **Resulting price aviation fuel 2025-2029(EUR/tonne):** | **€992** | **2% price increase** |
| | **Resulting price aviation fuel +FEETS (EUR/tonne):** | **€981** | **1% price increase** |

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# An outlook to the (average) price of aviation fuel in 2030

**Under current market conditions: 14% price increase for EU aviation fuel mix in 2030**

- Based on current SAF and EU ETS prices and RFEUA 2030 mandates*
- Under these market conditions, average aviation fuel price in 2030: €1,104/tonne

| Fuel type | Price (EUR/tonne) | Volume RFEUA (%) | Price share in one tonne of aviation fuel (EUR) |
|---|---|---|---|
| Conventional (fossil) aviation fuel + ETS price | €970 | 94% | €912 |
| Aviation biofuel (annex IX-B) | €2085 | 4.8% | €100 |
| Synthetic aviation fuel (RFNBO) | €7695 | 1.2% | €92 |
| | **Resulting price aviation fuel 2030 (EUR/tonne):** | **€1,104** | **14% price increase** |

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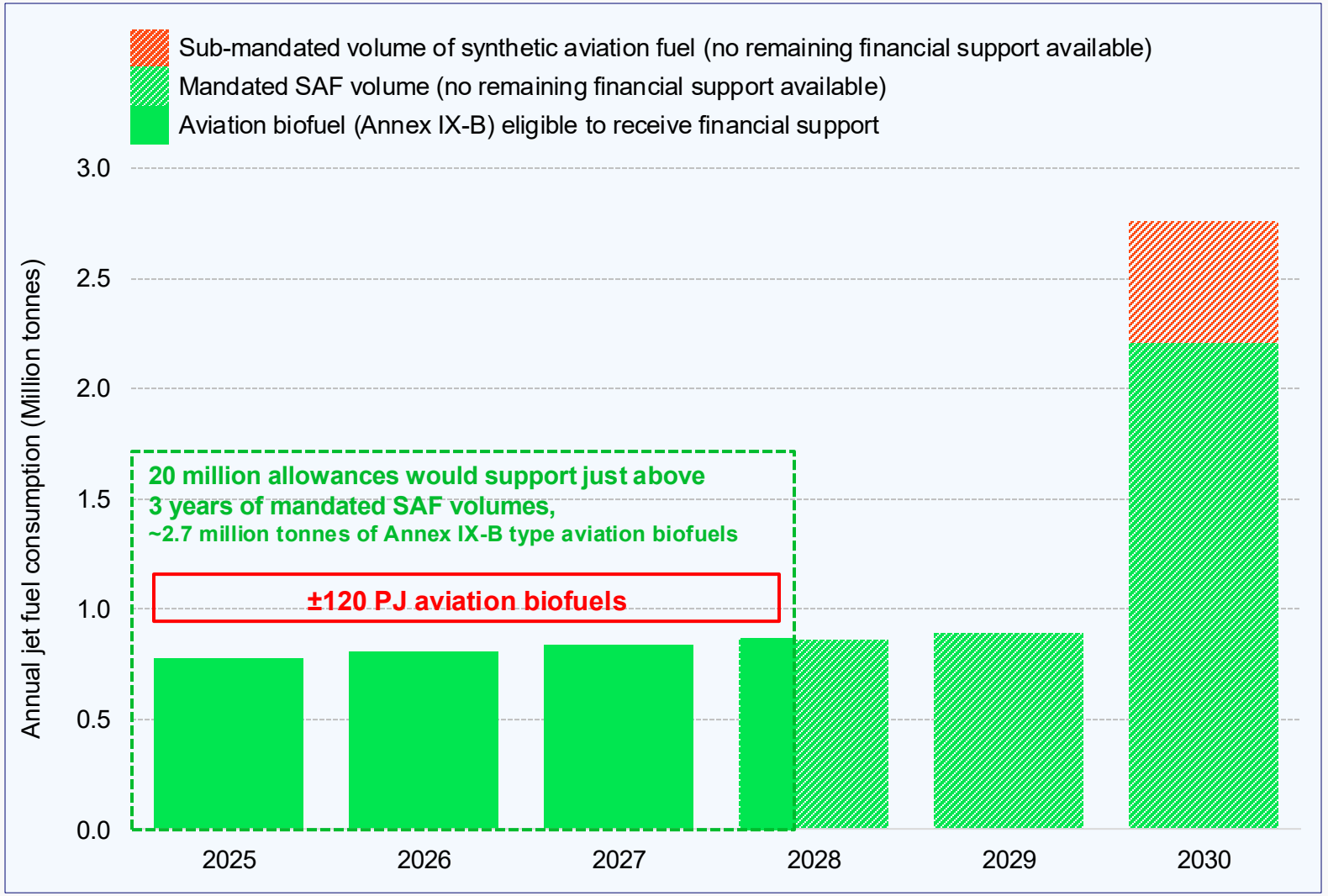
*Assessment based on price data published in EASA (2025) report, 2024 Aviation Fuels Reference Prices for ReFuelEU Aviation| Assumes ETS price €75/tonne CO2

# Evaluating the cost effectiveness of the FEETS support mechanism

**20 million reserved allowances equal to value of approximately € 1.5 billion**

- Represents an opportunity cost - forgone EU ETS revenue
- FEETS offers price support to ~2.7 million tonnes of aviation fuel
- Represents ±120 PJ aviation biofuels




Source: Analysis of studio Gear Up, explores the scenario where 20 million allowances are entirely allocated to Annex IX-B type biofuels. Assumes that SAF delivered to European market is used entirely for domestic aviation. Also assumes that the minimum mandated share of SAF is delivered to the market: i.e., no SAF delivered to the market in 2024 and no additional volumes.

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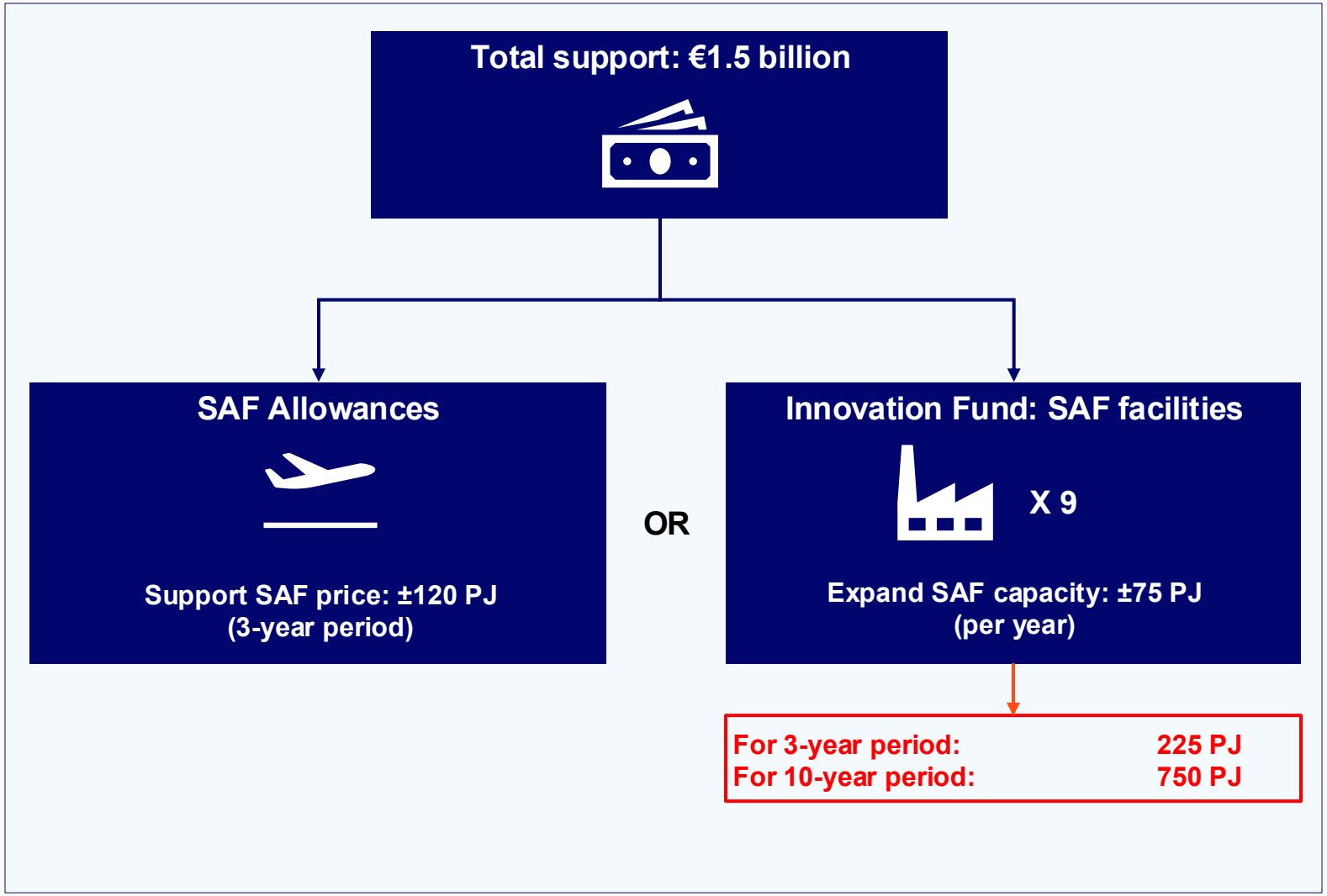
# Evaluating the cost effectiveness of the FEETS support mechanism

**What if €1.5 billion is used to support CAPEX new SAF projects?**
**Take for example the Biorefinery Oströnd in Sweden**

- Biorefinery Ostrand: awarded €160 million under Innovation Fund
- Capacity 185,000 tonnes SAF (and 50,000 tonnes naphta) per/year
- €1.5 billion → 9 production facilities
- Expansion in production capacity of SAF: 73 PJ per year




Note: the Innovation Fund is 100% funded by the EU ETS | Read more about the Biorefinery Ostrand project here: https://ec.europa.eu/assets/cinea/project_fiches/innovation_fund/101132801.pdf

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# Discussion points and questions

1. How do SAF allowances work to support production?

2. How does the instrument support the extra cost of SAF deployment?

3. Do you think that the FEETS support mechanism is needed for deployment of SAF?

## Other Questions?

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# Additional material from meeting

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# Summary of discussion points

**Discussions points**

1. **How to create an effective support instrument that establishes a level playing field for SAF markets?**

- Policy instruments have specific objectives in which they try to address (i.e. ramp up SAF volumes)
- But, these support mechanisms should aim to foster a level playing field
- How to create effective demand-side instruments and implement these alongside supply instruments?

2. **Should the SAF-allowances be awarded on a "first come, first serve basis"?**

- Is it fair to award the first movers in the market?
- An extension in FEETS would extend support to fuel options which are less commercially ready (such as e-fuels)
- This would expand the out-reach of the support mechanism

3. **Should SAF allowances be awarded to volumes that are exclusively additional to ReFuelEU Aviation?**

- FEETS would be a more effective instrument if only awarded to additional volumes
- Supporting fuels that are not already mandated by the RFEUA obligations
- This was originally outlined as part of the NL SAF roadmap – why has this detail been dropped along the way?

# Follow up actions and next steps

**How to establish a more effective demand-side instrument to support the SAF market?**

- Develop discussion group to continue exploring this topic
- Explore instruments could be more effective?
- How to stimulate the additional volumes required to meet the 14% sector ambition
- Bringing new analysis to the fuel table

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# Additional material – back of the envelope calculations:

**Potential emissions saving from FEETS support awarded to aviation biofuels**

- 2.7 million tonnes aviation biofuel ≈ ± 120 PJ ≈ 8.5 million tonnes $CO_2$
- Cost of FEETS support is €1.5 billion to achieve approximately 8.5 million tonnes $CO_2$ emission saving
- Represents an abatements cost of ~€176/tonne, based on providing 50% support level
- This is more than double the cost of an EU ETS allowance (approx. €75/tonne $CO_2$)
- To provide full price gap support to aviation biofuels, the abatement cost would double to €352/ tonne $CO_2$

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