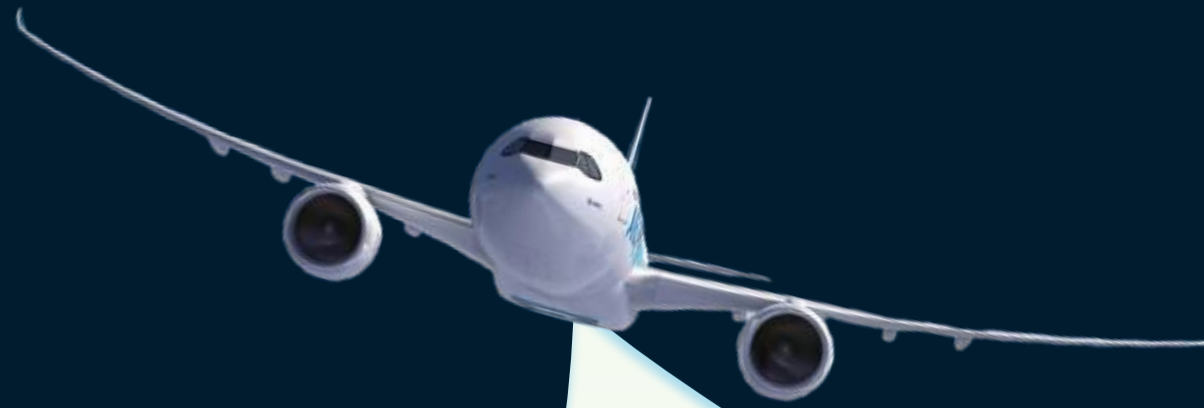
Project SkyPower



# Levelling the playing field

## Assessing potential competitiveness distortions of ReFuelEU

June 2026

DELIVERY PARTNERS

SYSTEMIQ

Green Finance Institute

SUPPORTED BY

CIFF CHILDREN'S INVESTMENT FUND FOUNDATION

climateworks FOUNDATION

Quadrature Climate Foundation

# Context: ReFuelEU is designed for broad application, but a key coverage gap creates a competitiveness challenge.

| **Operational distortions** (impacts across value chain) | **Commercial distortions** (uneven economic burden of SAF) | **Geographical distortions** (risk of carbon leakage) |
|---|---|---|
| ✓ Obligations on all industry actors: fuel suppliers, airlines, airports | ✓ Unilateral ramp-up of obligations to avoid cost shock in initial years | ✓ Coverage of all flights leaving the EU |
| ✓ Clear fuel eligibility criteria | ✓ Penalty framework to underwrite business case | ✗ Long-haul flights with layovers in non-EU hubs |
| | ✓ Flexibilities in initial years in case of short market | |

**Review of this distortion is integrated into ReFuelEU Aviation**, anticipating it could become an issue around 2040.

The Commission must present an assessment by 31 December 2026.



**Sources**: ReFuel EU Impact Assessment, 2021

# Methodology: We set out to answer three key questions

1. Is there a real distortion in exposure of EU and non-EU carriers to the mandate?
2. How large is the distortion?
3. When and where does it become significant?

# Methodology: In order to provide a snapshot of the issue, we have analysed cost per passenger on select routes

| | Methodology | Objectives | Assumptions and limitations |
|---|---|---|---|
| 1 | **Calculate additional cost of ReFuelEU per passenger** (in %) | Understand absolute cost impact – to use as comparison later | **All costs aside from e-SAF kept stable** to isolate cost impacts. |
| 2 | **Route selection**<br>• For each region, selected two of the top 10 destination airports: one **nearer Europe**, where diversion risk is higher, and one **further away**, where diversion risk is lower.<br>• Calculated the e-SAF cost on the **direct European flight**, then compared it with the closest plausible **non-EU transfer option**[1]. | Allows for snapshot of issue per region, targeting highest-risk routes to understand maximum exposure | **Fixed departure airport (FRA) and direct-flight benchmark exclude feeder routes from analysis**. Including them would likely show broader, stronger exposure, but require more assumptions. |
| 3 | **Results**<br>• **Risk rating:** Grouped routes into low / medium / high risk based on the number of options, and plausibility of layovers<br>• **Cost comparison:** Compared cost per passenger of 1) ReFuelEU and 2) additional fuel burn of layover | Captures a range of risk for region<br>Captures cost impact over time to get a sense of when it becomes critical | **Highest-risk routes per region are shown**. Many individual routes are likely to have lower risk. |
| 4 | **Airline exposure**<br>• Weighted exposure by airline archetype and share of revenue by destination region. | Indicates scale of exposure of different airline types. | **Actual impact on revenue varies by route,** so this should not be interpreted as actual revenue loss. |

DISCLAIMER

This analysis provides a snapshot of potential competitive distortions, including timing, scale, and regions most at risk. Price differentials and revenue exposure are not direct proxies for airline activity impact.

**Notes:** 1) To size maximum plausible impact on route. <50% additional travel time and a major hub airport -include smaller airports where established routes exist.

**Sources**: Based on flight booking search.

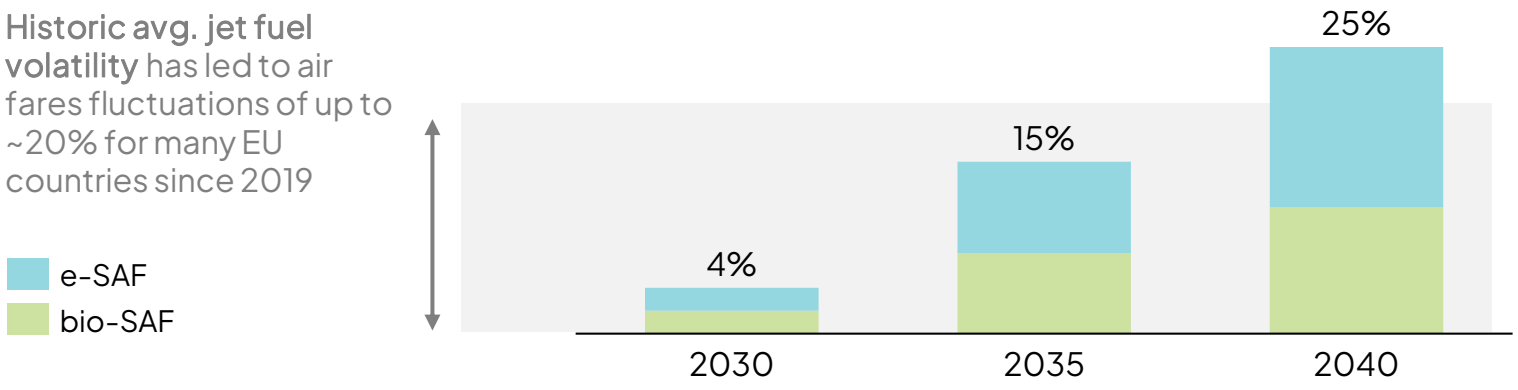
Illustrative

# Context: The absolute cost per passenger of ReFuelEU is expected to reach 5% in 2030 and ~25% in 2040

Cost per passenger of SAF volumes under ReFuel EU, relative to prices paid under fossil baseline[1], *Illustrative*

| | 2030 | 2035 | 2040 |
|---|---|---|---|
| *Cost of e-SAF as multiple of fossil* | 9x | 8x | 7x |
| *Cost per passenger [2]: Additional cost on long haul flight (e.g. Paris to New York, 500€ base price)* | +20€ | +75€ | +125€ |

Historic avg. jet fuel **volatility** has led to air fares fluctuations of up to ~20% for many EU countries since 2019




## Key takeaways

- Low blending targets and fuel costs share of average cost per passenger of **SAF costs per passenger to around +25% by 2050**
- Despite costing 5-8× jet fuel today, e-SAF prices are expected to fall ~40%, **with per passenger impacts of e-SAF alone staying <10% until 2040.**

**Notes**: 1] Fossil 900 EUR/t, including ETS cost. 2] Assumptions: Fuel cost share of ticket price: 25% long haul. Full cost passthrough of additional fuel costs. 10% margin on cost of e-SAF production. Non e-SAF costs remain stable at: HEFA 2400 EUR/t. Fossil 812 EUR/t. ETS 75 EUR/t. No inflation. Blending levels: 1.2% in 2030, 5% in 2035, 10% on 2040 as per ReFuel EU submandate.

**Sources:** Systemiq modelling based on Project SkyPower techno-economic model. Fossil jet fuel price volatility: IATA, 2024

Illustrative and non-exhaustive

# SkyPower analysis: Before sizing potential cost variation, risk of hub-switching differs widely by region

**Risk assessment of potential for switching to non-EU hub, by destination region,** *illustrative*

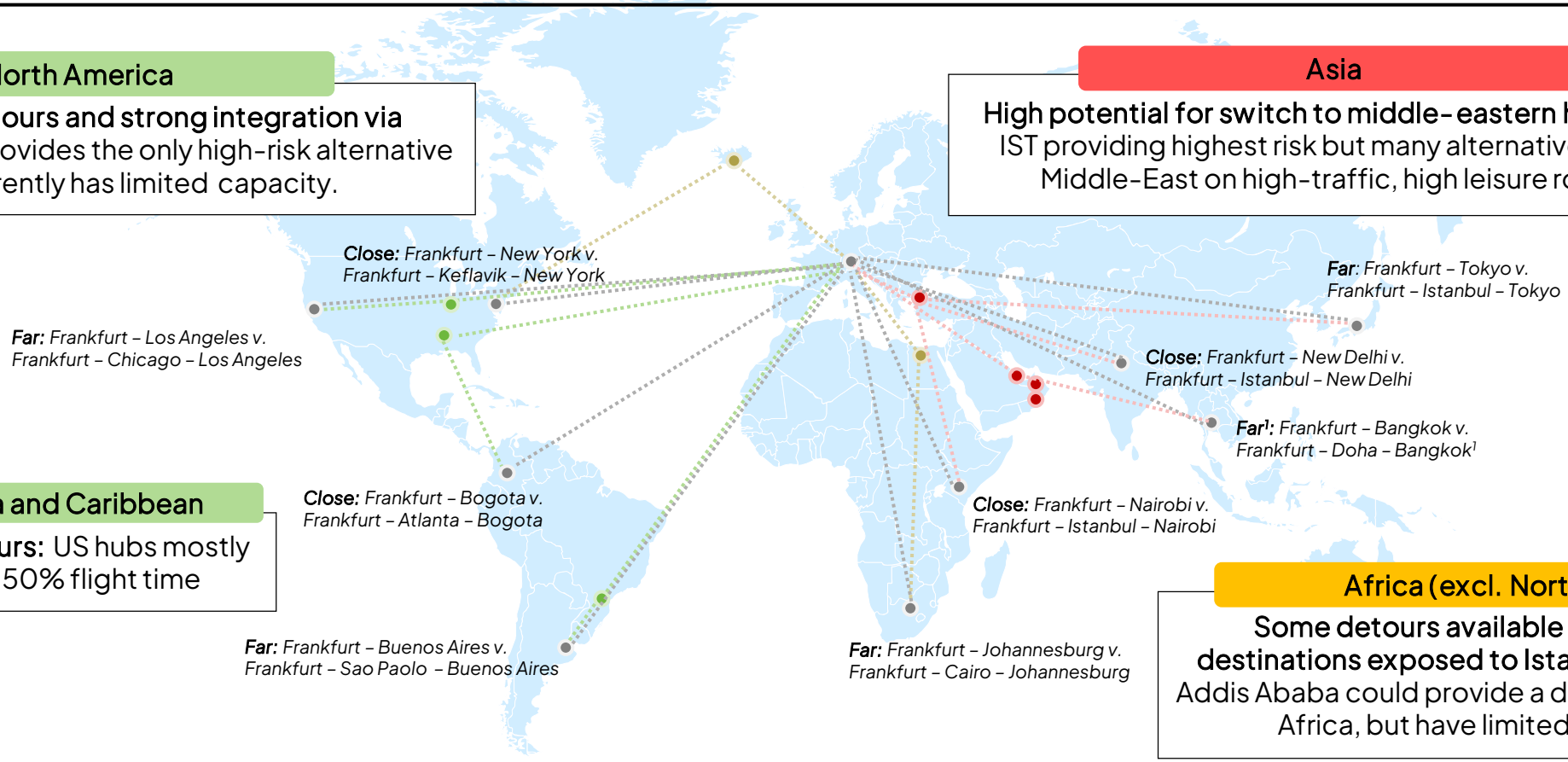
- ***Low risk:*** *Few realistic layovers*
- ***Medium risk:*** *Some limited layovers*
- ***High risk****: many layovers available*

## North America

**Few realistic detours and strong integration via alliances:** Keflavik provides the only high-risk alternative hub but currently has limited capacity.

## Asia

**High potential for switch to middle-eastern hubs**, with IST providing highest risk but many alternative hubs in Middle-East on high-traffic, high leisure routes




## South America and Caribbean

**Few realistic detours:** US hubs mostly add more than 50% flight time

## Africa (excl. North)

**Some detours available via Eastern destinations exposed to Istanbul.** Cairo and Addis Ababa could provide a detour to southern Africa, but have limited capacity

**Notes**: Intra-EU excluded as effect of ReFuel EU will be homogenous. Non-EU to Non-EU excluded as absorbed into other categories, but presents a high risk. Oceania excluded as not part of EU airline networks. 1) Additional route included for Asia as significant hub for leisure travel.

**Sources**: Based on flight booking search.

Illustrative

# SkyPower analysis: For most exposed routes, the cost per passenger for fuel could be ~ 50% higher by 2050

Relative increase in cost per passenger price for EU airlines on archetypal routes vs non-EU airline - assuming full cost passthrough, %

| | | | 2030 | 2035 | 2040 | 2050 |
|---|---|---|---|---|---|---|
| Low-cost differential and low likelihood of switching | South America and Caribbean | **High**: Frankfurt – Bogota Vs. Frankfurt – Atlanta – Bogota | 0-1% | 0-3% | 1-6% | <1-11% |
| | | **Low**: Frankfurt – Buenos Aires vs. Frankfurt – Sao Paolo – Buenos Aires | | | | |
| | North America | **High**: Frankfurt – New York Vs. Frankfurt – Keflavik – New York | <0-3% | <0-10% | <1-20% | <1-35% |
| | | **Low**: Frankfurt – Los Angeles Frankfurt – Chicago – Los Angeles | | | | |
| High-cost differential but low likelihood of switching | Africa (excl. North) | **High:** Frankfurt – Johannesburg Frankfurt – Cairo – Johannesburg | <1-3% | <6-12% | <10-20% | <20-40% |
| | | **Low:** Frankfurt – Nairobi v. Frankfurt – Istanbul – Nairobi | | | | |
| High-cost differential and high likelihood of switching | Asia | **High**: Frankfurt – Tokyo Frankfurt – Istanbul – Tokyo | <1-4% | <8-15% | <15-22% | <30-50% |
| | | **Low**: Frankfurt – Bangkok Frankfurt – Doha – Bangkok | | | | |
| | | **Low**: Frankfurt – New Delhi Frankfurt – Istanbul – New Delhi | | | | |

## Key takeaways

- Without corrective measures, the relative cost per passenger increase for EU airlines vs non-EU airlines on **select high-risk routes could be as high as +50% by 2050**
- **The cost differential per passenger remains relatively low in early years and is highly geographically concentrated** – there is a large range between highest risk routes and others.



**Notes**: Assumptions: Fuel burn impact is estimated using great-circle distance as a proxy for cruise fuel burn, plus an assumed +5% fuel uplift per additional landing and take-off cycle for indirect routings. Results are indicative only and do not account for aircraft type, payload, winds, routing constraints, airport procedures, taxi time, or airline-specific operations. Price assumptions are used to calculate potential cost distortions of EU-produced SAF, but could vary widely by 2050 w/ lower cost imports.

Illustrative

# SkyPower analysis: Exposure varies between carriers, but some are exposed for routes representing up to ~20-45% of revenue

| | | Destination weighting as % of total revenue, illustrative | | |
|---|---|---|---|---|
| | | Low cost carriers e.g. Ryanair, Easyjet | Europe-focused carriers e.g. SAS, Lufthansa | International carriers e.g. Air France, KLM, IAG |
| | Intra EU | ~90% | ~60% | ~30% |
| Low cost differential and low likelihood of switching | South America and Caribbean | | | ~15% |
| | North America | | ~20% | ~20% |
| High cost differential but low likelihood of switching | Africa | ~10% | ~10% | ~20% |
| High cost differential and high likelihood of switching | Asia | | ~10% | ~15% |

**Key takeaway**

Revenue exposure to competitive distortion is not a direct proxy for impacts on airline activity, but it shows that **international carriers may face competitiveness risks across substantial parts of their revenue base.**

**Notes**: Archetypes and route weighting are illustrative only and based on average reported 2025 passenger revenues for a range of airlines. 1) Separate from Asia and Africa since low risk

**Sources**: Lufthansa, AFKLM, IAG, EasyJet, Ryanair

Illustrative and non-exhaustive

# Implications: Additional costs may be partially absorbed, but will lead to eventual passenger and revenue loss

Risk to business

| Existing market strategies can absorb price discrepancies… | | … but only up to a point |
|---|---|---|
| Premium demand | Costs are shifted onto business and premium travel through higher fares, while leisure economy prices stay low | Only ~6% of passengers travel with premium rates – likely to drop w/ global economic downturn[1] |
| Portfolio pricing management | Pricing and yield management to raise fares where demand is less price-sensitive (long-haul, business-focused routes) and keep prices low where it is more sensitive (low-cost, short-haul, high-competition routes) | Pricing and revenue management already largely optimized. Further increases could reduce revenues, as passengers usually choose indirect routes for savings of around 20%[3] |
| Route rationalisation | Maximising utilisation and optimising offered routes, including cutting uncompetitive routes | Cutting routes has compounding effects, as losing slots in major airports also puts feeder routes at risk |
| Margin absorption | After passthrough of costs to ticket prices is optimized, fuel cost increases will impact airlines' bottom lines. | Airlines have typically low margins (around 3-5%). |



**Sources:** 1) IATA: 2024 World Air Transport Statistics Report, 2) Based on Project SkyPower ticket price analysis, 3) Netherlands Institute for Transport Policy Analysis: Non-stop flying: about the preference among air travellers for direct connection, 2024

# Implications: EU airlines face multiple cost pressures, eroding their ability to absorb higher fuel prices and stay globally competitive

## Geopolitical

- **Longer- routes and more direct competition with Middle-eastern airlines** – Due to closure of airspace over Russia and parts of the Middle-east
- **Fuel shortages and price spikes -** due to geopolitical turmoil and lack of domestic production

## Regulatory

- **Second-highest taxation and airport charge regime globally** - while competing with Middle Eastern airlines subject to minimal taxation
- **ETS and SAF mandates** increasing fuel costs

## Infrastructure

- **Loss-making flights** – due to "Use-it-or-lose-it" slot polices
- **Hampered domestic growth** – due to slow airport expansion

**Key takeaway**

While no single factor is impacting the margins of all EU airlines, compounding pressures erode their ability to be on the front lines of SAF development in the next decades.



**Sources**: IATA, Specfiic taxes on the use of air transport, November 2025

Non-exhaustive

# Solutions: Several proposals for correcting the distortion have been proposed – SAF-BAM emerges as a high-potential option

*Meets criteria:* Completely Partially Not at all

| *Evaluation criteria:* | *SAF certificates imposed on non-EU carriers - 'SAF-BAM'* | Targeted SAF allowances/carbon pricing | Local support or exemptions for EU hubs | Scope extension ReFuelEU |
|---|---|---|---|---|
| **Legally and politically feasible**, with a line of sight of becoming fully implemented by 2040 | *Feasibility under review, but operationalisation remains complex.* | *Under the scope of the ETS review – complexifies regulatory landscape* | *Depending on Member State ambition and State Aid limitations* | *Requires Book and Claim and changes to text of ReFuelEU* |
| **Additive to the existing ReFuelEU framework** without any impact on its integrity | *New measure that extends impact, and encourage non-EU states to apply own mandates* | *Provides direct compensation* | *Exemption-based implementation weakens overall framework* | *Requires extensive rework of framework* |
| **Effective and proportional** in addressing the competitiveness distortions | *Indexed to evolving costs and leads to additional revenue for reinvestment* | *Available funding may not be sufficient to cover gaps in the long-term* | *Likely to be piecemeal* | *Extends impact* |
| *Summary* | *High-potential option to strengthen ReFuelEU and generate revenue for SAF support* | *Potential short-term solution, but links separate regulations* | *Could support specific airlines but likely to lead to additional intra-EU distortions* | *Complex implementation, weakens current framework* |

# Key takeaways

- **ReFuelEU sets a globally leading SAF mandate for aviation – placing EU airlines at the frontlines of the growth of SAFs.** European airlines have raised concerns that the mandate could increase costs relative to non-EU airlines and weaken their competitiveness in an already pressured sector.

- **Despite high costs for SAFs, ReFuelEU does not create an absolute cost problem, but a relative one**: competitive distortions arise from asymmetric fuel exposure on certain long-haul routes. This risk is geographically constrained, with only a small number of airports, mainly in the Middle East, offering non-EU transfer alternatives at scale, but significant. The price impact on EU airlines is immediate and becomes more material in the 2040s. On the most exposed routes, EU airlines could face fare increases of up to 20% by 2040 relative to non-EU competitors.

- **Unchecked additional relative costs will impact competitiveness.**
  - Airlines have pricing and market mechanisms at their disposal to distribute and absorb additional costs, via using premium pricing, passings costs through, and optimising their networks, but each of these levers is already being optimised and each has a ceiling.
  - Once those options are exhausted, airlines face harder trade-offs. They may need to reduce feeder routes, accept lower margins, or both. Airlines already operate on thin margins, leaving limited room to absorb further structural cost increases.
  - ReFuelEU distortions are only one part of the wider cost picture. EU airlines face multiple overlapping cost pressures and competitive disadvantages in the global market. These compound over time and reduce their ability to absorb further costs.

- **We are aligned with the Commission's assessment that the impact of ReFuelEU risks bringing about a competitive disadvantage for EU airlines, that becomes increasingly significant between 2030 and 2040.** Though this should not be a barrier for fuel suppliers to commit to long-term offtake agreements, it does limit the ability of airlines to commit to long-term (10 year+ ) offtake agreements at FOAK prices.

- **Airlines need a line of sight and confidence in a targeted corrective measure that will ensure a level playing field to simultaneously compete globally and lead on climate ambition.** This is an essential element of the long-term success of ReFuelEU. We urge the Commission to uphold its commitment to provide line-of-sight to a solution by year-end.