

Revised EU ETS in a CORSIA world: impact on EU carriers

Dr. Sven Maertens
German Aerospace Center

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1. Introduction

How would a revised EU ETS interact with CORSIA? How would it impact EEA carriers and extra-EEA routes?

- **EU ETS** and **CORSIA** are so-called **market-based measures** to reduce CO₂ emissions from aviation.
- A **revision** of the **EU ETS** could mean a **stronger cap**, a **higher auctioning share** and/or an **extension to extra-EEA routes**.
- Geography-wise, there are **already overlaps with CORSIA** (ICAO's offsetting scheme) **on international intra-EEA routes**.
- An **ETS extension to extra-EEA routes** could mean **additional overlap**.
- This presentation shall give an **overview** of the **impacts** of the schemes' **geographical scopes** on **EEA carriers**.

2. ETS vs. CORSIA

| | | EU ETS | CORSIA |
|--|-------------------------|---|--|
| Fundamental differences | Methodology | Cap&Trade: Allowances for each ton of CO ₂ ; Actual reduction where it is cheapest | Baseline&Credit: Offsets for each ton of CO ₂ above baseline; Compensation through projects that reduce CO ₂ elsewhere |
| | Environmental integrity | Not critical, fixed overall cap | Dependent on offset quality standards (e.g. additionality) |
| | Verification needs | Emitter level | Emitter & project levels |
| Differences in current implementation and application | Cap/Baseline | 95% of avg. 2004/2006 emissions; linear reduction | 2019 emissions; no further reduction |
| | Geographical scope | Intra-EEA segments including domestic | International segments between ~90 participating states |
| | Affected carriers | All airlines operating on covered routes, unless exceptions apply | |
| | Affected aircraft Types | Fixed wing (>5.7t MTOM) and helicopters | Fixed wing (>5.7t MTOM) |

Main drivers of emission reduction and economic impact:

- Geographical scope (flight segments covered)
- Stringency (e.g. cap/baseline/share of auctioned allowances)

*) Higher, mandatory coverage from 2027

3. Where EU ETS and CORSIA overlap





Flight segments (not) covered

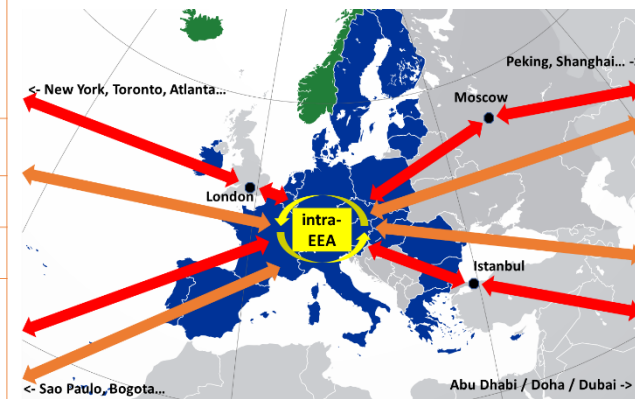
| | Intra-EEA domestic | Intra-EEA int'l | EEA – non-EEA | Overlap with CORSIA |
|------------------------------|--------------------|-----------------|----------------------------|-------------------------------|
| CORSIA (as is) | Not covered | Covered | Covered (if participating) | --- |
| EU ETS reduced scope (as is) | Covered | Covered | Not covered | Intra-EEA int'l |
| EU ETS full scope | Covered | Covered | Covered | Intra-EEA int'l & EEA-non-EEA |

- The current ETS (limited until 2023) covers all intra-EEA flights and CORSIA all international flights from and to participating states.
- A revised, full scope ETS would overlap with CORSIA also on international extra-EEA flights.

4. Impacts on EEA and non-EEA carriers

Exact routing and intermediate hub(s) determine how carriers are affected

| | | | EU carriers | Non-EEA carriers |
|---|---|----------------|---------------------------|---------------------------------|
| Intra-EEA e.g. Rome-Riga or Nice-Bordeaux or Malta-Frankfurt-Helsinki |  | ETS reduced | Fully | n/a (few exceptions) |
| | | ETS full scope | Fully | |
| | | CORSIA | Partly (Int'l only) | |
| EEA-World nonstop e.g. Madrid-Bogotá |  | ETS reduced | Not covered | Not covered |
| | | ETS full scope | Fully | Fully |
| | | CORSIA | Mostly | Mostly |
| EEA-World via EEA hub e.g. Prague-Dublin-Boston |  | ETS reduced | Partly (EEA portion only) | n/a (few exceptions) |
| | | ETS full scope | Fully | |
| | | CORSIA | Mostly | |
| EEA-World via non-EEA hub e.g. Vienna-Dubai-Bangkok |  | ETS reduced | n/a (few exceptions) | Not covered |
| | | ETS full scope | | Partly (EEA-World portion only) |
| | | CORSIA | | Mostly |



- **ETS reduced scope (as today):** The higher the route share within EEA, the higher the impact.
- **ETS full scope:** The closer the non-EEA hub, the lower the impact.

5. Affectedness by airline

2018 revenue share of routes (to be) covered by the EU ETS and/or CORSIA

- Simple Proxy for commercial impacts of geographical scope on carriers

- Actual cost impacts not modelled!

- Current ETS without CORSIA: Burden only on EEA/UK carriers

- Full ETS + CORSIA: Competitive advantage mainly for carriers with large domestic networks (China, US) and with routes from non-EEA hubs (like Dubai) to non-CORSIA states (like Pakistan)

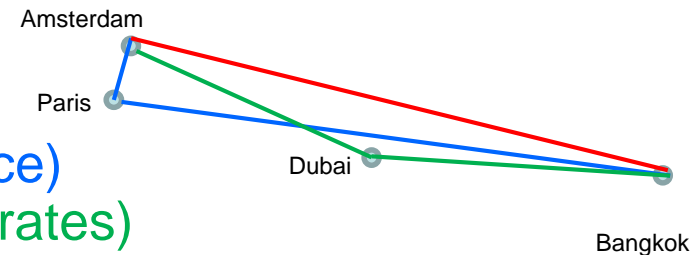
| Airline | Category | Revenue shares of routes subject to... | | | | | |
|--------------------------|------------|--|-------------|-------------|--------------|-----------------------|--------------------|
| | | EU ETS red. | EU ETS full | CORSIA vol. | CORSIA mand. | CORSIA or ETS reduced | CORSIA or ETS full |
| Emirates | BoGu | 0% | 32% | 69% | 86% | 86% | 86% |
| Turkish Airlines Inc. | BoGu | 0% | 21% | 49% | 59% | 59% | 59% |
| Qatar Airways | BoGU | 0% | 27% | 71% | 84% | 84% | 84% |
| PJSC Aeroflot | BRIC | 0% | 25% | 0% | 56% | 56% | 56% |
| Air China Limited | BRIC | 0% | 11% | 0% | 35% | 35% | 35% |
| China Southern Airlines | BRIC | 0% | 2% | 0% | 20% | 20% | 20% |
| China Eastern Airlines | BRIC | 0% | 3% | 0% | 23% | 23% | 23% |
| Ryanair | EU LCC | 96% | 100% | 86% | 86% | 97% | 100% |
| Easyjet | EU/UK LCC | 95% | 100% | 80% | 80% | 98% | 100% |
| Deutsche Lufthansa | EU Network | 34% | 99% | 69% | 86% | 95% | 100% |
| Air France | EU Network | 25% | 97% | 54% | 70% | 82% | 98% |
| KLM Royal Dutch Airlines | EU Network | 32% | 98% | 70% | 84% | 85% | 98% |
| British Airways | UK Network | 20% | 97% | 71% | 87% | 90% | 98% |
| Southwest Airlines | US LCC | 0% | 0% | 3% | 3% | 3% | 3% |
| United Airlines | US Network | 0% | 18% | 33% | 40% | 40% | 40% |
| American Airlines | US Network | 0% | 10% | 20% | 24% | 24% | 25% |
| Delta Air Lines | US Network | 0% | 18% | 29% | 34% | 34% | 34% |

Source: Sabre MI leg statistics

6. Backup: Market definitions

OD

- Origin-destination combinations for which tickets are sold
- E.g. OD from Amsterdam to Bangkok
- Different, competing routings
 - **Direct (on KLM or Thai Airways)**
 - **Indirect via a EEA hub (e.g. on Air France)**
 - **Indirect via a non-EEA hub (e.g. on Emirates)**



Segment

- Actual flight, may (not) be identical to a passenger's OD
- E.g. the OD Amsterdam-Bangkok may consist of one (nonstop) or two or more (indirect) segments.

ETS and CORSIA are applied at the segment level.
Actual passenger ODs are not of direct relevance.