Aviation in EU emissions trading
- Advantages and challenges -

Dr. Janina Scheelhaase
German Aerospace Centre (DLR)
Structure of the Presentation

1. Aviation’s contribution to climate change
2. Regulatory framework
3. Advantages and key challenges
1. Aviation’s contribution to climate change

Global aviation contributes a few percent to anthropogenic radiative forcing. Non-CO$_2$ impacts comprise about 2/3 of the net radiative forcing. (Lee et al., 2009 and 2021).
2. Regulatory framework: Current EU-ETS for aviation

• **Legal framework**: EU Directives 2008/101/EC and 2009/29/EC.

• **Affected operations**:
  - Flights departing and arriving in the EU, Iceland and Norway (EEA) from 2012 onwards (“original = Full Scope”)
  - **Intra-EEA flights only** (“Stop-the-Clock” regulation for the period 2013-2016, extended until 2023; “Reduced Scope”)
  - **General exclusions**: Aircraft below 5.7 t Maximum Take-Off Mass (MTOM), VFR, government & military flights, and certain flights to remote regions, etc.

• **CO₂ emissions cap**:
  - 2012: 97% of so-called historical emissions (2004-2006 average)
  - Since 2013: 95% of so-called historical emissions.
2. Regulatory framework: ICAO’s CORSIA

- **State A:** MRV only
- **State B:** MRV only
- **State C:** MRV only
- **State D:** MRV only
- **Fully outside CORSIA-Scope:**
  - Emissions from...
  - ... domestic flights*
  - ... small operators (<10,000 t CO₂ a.a.)
  - ... small aircraft (<5.7 t MTOM)
  - ... medical, humanitarian, and firefighting operations
  - ... military and Governmental operations*  
  *Outside scope of Chicago Convention.

### Until 2026
- Voluntary participation of some 88 states representing some 77% of int’l RTK

### From 2027
- Mandatory participation of all states whose carriers account for >0.5% of global RTK in 2018

### Offsetting requirement @ carrier level
- Growth factor: CO₂ emissions growth on CORSIA routes between 2019/2020 baseline and reporting year
  - 100% sectoral: 2021 - 2029
  - Min 20% individual: 2030 - 2032
  - Min 70% individual: 2033 - 2035

### Operator’s individual emissions on covered routes
- Growth factor

References: Assembly Resolution A39-3, Paragraphs 10/11/13; ICAO CORSIA website (“CORSIA States for Chapter 3 State Pairs”)
3. Advantages and key challenges

Chances:

The revision of the EU emissions trading scheme could be an important means to achieve climate-neutral EU by 2050 and intermediate goal of -55% by 2030. Aviation could contribute to these goals.

Key challenges:

- Relationship EU ETS for aviation with CORSIA
- Geographical scope of EU ETS for aviation
- Level of auctioning (currently 15 %)
- Level of emissions cap (currently 95 % of 2004 – 2006 average)
- Inclusion of aviation’s non-CO$_2$ species
- Additional incentives for the use of sustainable aviation fuels (SAF)
Thank you for your attention!

Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR)
German Aerospace Centre
Institute of Air Transport and Airport Research | Linder Hoehe | 51147 Cologne | Germany

Janina D. Scheelhaase MBA, PhD
Head of Air Transport Economics Department
Telephone +49 02203 601-2187 | Telefax +49 02203 601-2377 | janina.scheelhaase@dlr.de
www.DLR.de/fw
Backup: EU ETS versus CORSIA

CO₂ emission compensation in per cent of global passenger traffic emissions

Source: DLR modelling results. CORSIA voluntary states as of April 2017.
Backup: Non-CO$_2$ impacts of aviation to climate change

Requirements for non-CO$_2$ calculation methods

Should provide incentives for actually reducing non-CO$_2$ effects

– not a constant factor, but depending on e.g. technology and operations
– not simply adding costs, but providing the possibility to reduce climate impact and cost of operation.

Policy measures and inclusion of non-CO$_2$ effects by CO$_2$e calculations

Several calculation methods for non-CO$_2$ effects are in principle available, which differ in the degree of detail and are subject to uncertainties related to atmospheric science.

Risk assessment is required to better understand the impact of uncertainties on the calculation of non-CO$_2$ effects and thereby on the potential of setting wrong incentives.

Operational feasibility currently tested in DLR research project on behalf of the German UBA.

Promising measures could be selected now, the economic impact analyzed and pilot projects conducted.

First steps towards implementation of non-CO$_2$ effects with varying complexity were investigated, showing principally the possibility to address relevant non-CO$_2$ species by including them into the current EU-ETS.

Source for this slide: DLR Research Project on Testing MRV schemes for non CO$_2$ effects on behalf of the German Environmental Agency (UBA) (2021).