Barriers to the uptake of post fossil fuels - Aviation

Climate protection in aviation and maritime transport

Berlin, Dessau, WebEx, 16/11/2021
Sven Maertens
Barriers to the uptake of post fossil fuels - Aviation

- **Technology**: Airport *infrastructure* and aircraft *technology ready* as ASTM D7566 and other standards currently allow for immediate, up to 50% blending of Fischer-Tropsch or HEFA Synthesized Paraffinic Kerosene with conventional jet fuel – 100% envisaged for the future

- Much *faster time to market* than, e.g., hydrogen-powered aircraft and *gradual transition* possible

- Enough potential demand for massive e-fuel in aviation – possibility to achieve high *economies of scale*

- But there are some *barriers to the use of e-fuels*…
Barriers to the uptake of post fossil fuels - Aviation

High cost

- **Fuel costs** ~ 35% of airline operating costs; low margins; high competition

- **e-fuel cost factor** compared to petroleum-based jet fuel: 3-6 today, >2 in 2050?

- **No incentive** to change fuel type as long as sustainable alternatives are more expensive

- **Future reduction of cost/price gap** if oil price and/or carbon cost increase
Barriers to the uptake of post fossil fuels - Aviation

Institutional and legal barriers

• Fuel supply in aviation: well-attuned, running system characterized by high path dependency

• No incentives or regulation yet to raise e-fuel share

• Blending quotas could be introduced at the national levels (as technical specification) and/or at EU level (Fit for 55)

• Possible measures:
  • Direct: Mandatory blending shares, green certificates…
  • Indirect (-> e-fuels): R&D subsidies, investment aids…
  • Indirect (-> fossile fuels): carbon pricing, stricter MBM…

• Lack of global, cross-sectoral strategies
Thanks for your attention!

Contact

- Sven Maertens, sven.maertens@dlr.de

Öko-Institut
Borkumstr. 2
13189 Berlin
Germany
Tel.: +49 (30) 40 50 85-0

CE Delft
Oude Delft 180
2611 HH Delft
The Netherlands
Tel.: +31 (15) 215 01 50

Deutsches Zentrum für Luft- und Raumfahrt (DLR)
Linder Höhe, 51147 Köln
Germany
Tel.: +49 2203 601-0

This presentation was prepared for the German Federal Environment Agency (UBA) as part of the project titled “Klimaschutz im Luft- und Seeverkehr: Optionen zur Erreichung der Klimaziele” (FKZ 3717 43 102 0). This project is being carried out by Öko-Institut (coordination), CE Delft and DLR. The contents of this presentation do not necessarily reflect the official opinions of the German Federal Environment Agency.