

Include international air transport in the national Paris Agreement targets.

Without additional GHG reduction measures European air transport will spoil the national reductions



Aviation is kept outside the Paris Climate Agreement. CORSIA of ICAO will not reduce Aviation GHG but lead to increased emissions.

Without additional GHG reduction measures air transport will spoil the national reductions of European countries.

In most of these countries large airports offer international business connections that are valuable assets in their national economy. Therefore their international air transport should

realize the same GHG-reduction as the rest of their economies.

Create level-playing fields and include international air transport in the national Paris Agreement targets of these countries. That will create a legal basis to take effective national measures and fully promote an effective EU ETS with declining caps for all air transport, both intra and extra Europe.

Why CORSIA of ICAO won't help a bit

Instead of contributing to the Paris Climate Agreement, the air transport industry adopted its own commitments in ICAO to reduce its climate warming effects. This program is called CORSIA. The expected effects are:

1. After 2030 non-fossil fuel will indeed partly decrease CO₂ effects of regular kerosene, but not so much as shown in this diagram. Non-fossil fuel is not suitable for full use at the very low temperatures at cruising altitudes. Only less than 50% could be mixed with fossil kerosene [SkyNRG]. Also the net CO₂ reducing effect is far less than 100% because of energy use in production and transport. The maximum effect of non-fossil fuel will be less than 45% of total fuel use. This percentage will be lower due scarcity in the non-fossil fuel market.
2. The actual warming effects (called Radiative Forcing, RF) of aviation are at least twice those of CO₂ alone, due to non-CO₂ emissions, especially of NO_x and linear contrails. See Figure 1 below. Neither

the CORSIA carbon neutral growth, nor non-fossil fuel will reduce the RF of these non-CO₂ emissions.

3. IATA rejects GHG reduction measures that would endanger the forecasted volume growth.
4. The air transport industry pursues to halve its CO₂ emissions by 2050 compared to 2010, but not to reduce any non-CO₂ emissions. The total reduction effect is far less than the 95% GHG reductions in 2050 as agreed in Paris.

These findings are processed in the diagram in Figure 2. The vertical axis indicates the RF of both CO₂ and non-CO₂ emissions, each defined as 100% in reference year 2005.

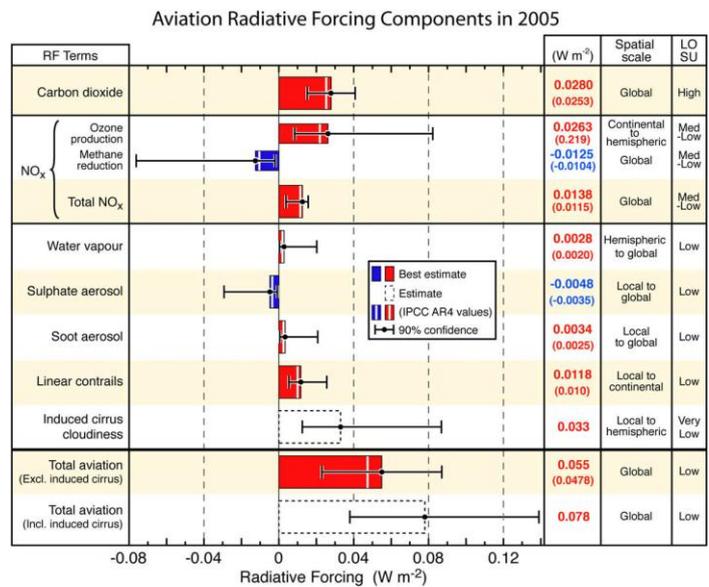


Figure 1. Radiative Forcing (RF) of aviation. Source: [Lee et al., 2009]

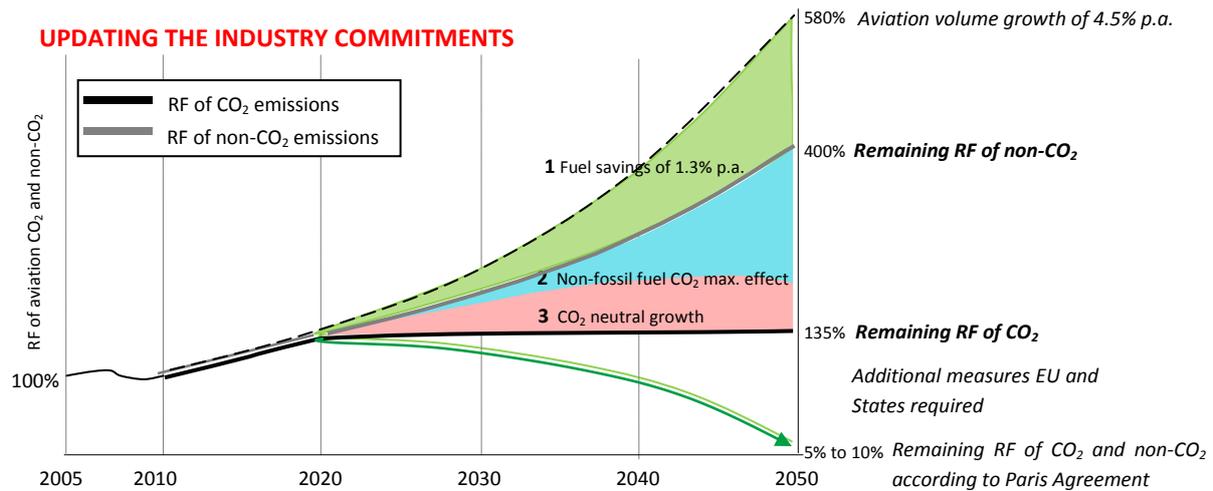


Figure 2. Diagram of the air transport industry commitments

The air transport volume increases to 580% in 2050 at 4.5% annual growth. Owing to annual fuel savings of ultimately 1.3% the RF of both emissions increase less, namely to 400% in 2050. Further, the combination of maximum non-fossil fuel use and carbon-neutral growth reduces the RF of only CO₂ emissions to 135% in 2050 (see the black line), the same level as in 2020. It is assumed that CORSIA must remain effective up to 2050. However, sufficient availability of CO₂ offsetting projects is not all guaranteed as the world will need more and more projects to comply with the Paris target. The RF of non-CO₂ emissions (see the blue line) will not be reduced and will be some 400% in 2050, supposing the ratio of these emissions and the fuel use equals that in 2005. These results are based on the maximum of combined effects of both fuel savings, non-fossil fuels and carbon offsetting. In practice they will be worse.

Air transport will spoil the Paris Agreement results

According to the Paris Agreement the total global emissions should be reduced in 2050 to 5% of those in 1990. In 2050 the share of CO₂ emissions of aviation in global emissions will increase from 2% in 2005 to some 3% and those of non-CO₂ emissions from 2% in 2005 to some 8%. Consequently, despite CORSIA, the remaining global emissions including air transport will be 16%, way above the Paris target of 5%. This will enable the GHG-reducing world to keep global warming below 2 degrees, let alone 1.5 degrees.

One of the industries to suffer from the harmful economic effects of too much global warming will be the air transport industry itself. Just for the sake of its long term continuity, this industry has an interest to prevent the failure of the Paris Agreement by producing its fair share in the global reduction of GHG emissions. Instead, IATA is protecting air transport growth at the cost of effective measures.

EU Governments having a national interest in air transport should take measures

Since climate neutral air transport will not be available before 2050 (if any), effective GHG reduction measures are required to produce this fair share in the global reduction of GHG emissions. Governments of European States consider the air transport at their large airports as valuable assets for their national economies, offering employment and large networks of international business connections. Since all national actors in those economies are expected to deliver their share in the Paris GHG reduction, there is no reason why a national interest as air transport should be excluded and spoil these efforts.

Therefore European Governments should prevent this by including both their national and international air transport fully in their national GHG reduction goals.

This will create a legal basis for Governments to

- strongly support the inclusion of all air transport intra and extra the EU in an improved EU ETS with caps declining to 5% in 2050,
- only approve Governmental investments in airport expansions if these don not disturb the GHG reduction,
- if necessary introduce fuel taxes to control air transport growth not contributing to the economy, such as low-budget leisure trips,
- promote the substitution of many European flights by electric high speed ground transport,
- promote internet communication like video conferencing and virtual reality tourism.

References

ATAG 2013, *Position paper on carbon neutral growth*,

<https://www.iata.org/policy/environment/Documents/atag-paper-on-cng2020-july2013.pdf>

Lee et al., 2009, Aviation and global climate change in the 21st century, *Atmospheric Environment* 43 (2009) 3520–3537,

<http://elib.dlr.de/59761/1/lee.pdf>

SKYNRG, 2017, <http://skynrg.com>

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