Corsia: worst option for the climate

Briefing on assessment of ICAO's offsetting scheme

March 2021

Summary

A study into the UN's aviation offsetting scheme (Corsia), commissioned by the European Commission following a requirement in EU law, has found major flaws in the scheme, calling into further question whether it can be in any way compatible with the European Green Deal.
The group of researchers hired to conduct the analysis delivered a study in September 2020 which was accessed through a request for access to documents but not published. This study will feed into the upcoming proposal to **revise the EU ETS for aviation to be published in June 2021**. This briefing provides an analysis of the main findings of this study as well as T&E's recommendations to ensure Corsia does not further damage the EU's climate ambitions by integrating it into EU law to the detriment of the EU ETS.

- **Corsia is the worst option for the climate**: implementing ICAO's Corsia would be the most damaging option for the environment as it leads to **the biggest global increase in aviation CO2 emissions**. Whereas the **EU ETS full scope has the largest environmental benefits** and relatively low cost impacts, it also delivers the greatest positive impact on employment and the economy (p 22)
- **Questionable quality of offsets**: none of the offsetting programmes approved under Corsia meet all of the required criteria (and all having issues with double counting). A large share of existing projects are delivering emission reductions in sectors that are already covered by their respective country's current climate targets and double counted. (p18-21)
- **Price & oversupply of offsets**: Corsia will have an oversupply of cheap (less than 1€[1]) carbon offset credits, worsened by ICAO's decision to change its baseline due to COVID19, which implies the price signal faced by airlines under the scheme will never provide any financial incentives for them to reduce emissions. It is even cheaper to buy

[1] The study shows that a majority of credits eligible for Corsia are trading at prices under 1€ (page 143 of the study)

credits than using clean fuels and technology meaning there is no incentive to decarbonise. (p20)

- **Lack of participation from key markets**: aviation markets like China, Russia, India, Brazil, and Vietnam remain out of the scheme and some big markets such as the US don't yet have binding regulation to implement it, which further damages the scheme's ability to neutralise aviation's emissions growth. Corsia would only cover **approximately 35% of global aviation CO2 emissions**. (p15, p52)
- **Clear lack of overall transparency & enforceability**: ICAO is not publishing member states differences and objections to the scheme, and states are not obliged to publish the final offsetting requirements of its airline operators, meaning there is no way of checking whether states are actually implementing Corsia. (p17-18)

1. Context

In October 2016, the UN's International Civil Aviation Organisation (ICAO) agreed the outlines of the Carbon Offsetting and Reduction Scheme for International Aviation (Corsia) which aimed to stabilise CO2 emissions from international aviation at 2020 levels. It introduces a requirement on airlines to purchase offsets or to meet these targets through the use of alternative fuels neither of which guarantee actual carbon neutrality according to T&E previous studies[2]. Participation by states in the first phases of the scheme are voluntary until 2027, after then all ICAO member states are expected to participate.

Pending the development of the rules implementing Corsia, the EU ETS Directive was revised in 2017 to extend once again the geographical scope derogation until the end of 2023 and limit the EU ETS to only intra-EU aviation. However, it obliged the Commission to report back on the environmental integrity of the scheme before deciding on how to implement it in EU law (Article 28b). This study was expected to be shared **before the start of Corsia in 2021**, and looks at specific elements such as its general ambition in relation to targets under the Paris Agreement, the level of participation, its enforceability, transparency, as well as the quality of offset credits, monitoring, reporting and verification of emissions.

A group of researchers was hired to support the Commission's analysis and **delivered a study in September 2020 which was** accessed through a request for access to documents. This study is expected to feed into the upcoming proposal to revise the EU ETS for aviation to be published in June 2021, meaning its publication prior to that date is **essential in order for all stakeholders to be able to better evaluate the measure**.

[2] T&E (2020), Why Europe should focus on its own airline carbon market and forget the UN scheme

2. Analysis of Corsia's main features

The study looks into the environmental integrity of Corsia, by analysing the ambition of its climate target, but also the price and quality of its offsets, as well as the scheme's coverage and overall transparency.

2.1. Lack of Environmental integrity

The study shows not only that ICAO's carbon neutral growth target is at odds with the European Green Deal objectives but it won't even be able to reach its own target.

- **Corsia's ambition is at odds with the Paris agreement & European Green Deal**

The study recalls that the 2015 Paris Agreement aims to limit global temperature increase to 'well below 2˚C above pre-industrial levels' and that although the Agreement does not explicitly mention international aviation, the sector's emissions are covered by the Agreement's overall targets. It states that "the Paris Agreement mentions **economy-wide absolute emission reduction targets thereby arguably also covering international bunker (*ed - aviation*) fuels** as these still play an important role in many countries' economies." It continues by adding that "in addition to the **EU - which already regulates international aviation emissions under the EU ETS** (...) – a few countries have started to include international transport emissions in discussions on decarbonisation strategies."

The study assesses the effectiveness of Corsia in reaching the Paris Agreement goals as well as the EU's climate targets, and concludes that "CORSIA's level of ambition for the international aviation sector is **not in line with the global level of ambition** required to keep within the temperature goals of the Paris Agreement." In addition, it notes that "**replacing part, or all, of the coverage of aviation from the scope of the EU ETS with CORSIA** (...) **risks weakening EU climate targets** or may require the implementation of deeper emission cuts and removals in other sectors."

- **Corsia's contribution to a carbon neutral growth target is not going to be met**

ICAO aims with Corsia to ensure no net growth in CO2 emissions from the international aviation sector over the period 2021-2035, which means that, even if the target ambition of Corsia is achieved, **the scheme does not require emissions from the international aviation sector to decrease over time.** The study highlights that for Corsia to deliver on its objective for "carbon neutral growth" from 2020, all countries would need to participate in the scheme from the beginning of 2021. But "because CORSIA only covers flights between participating States, and a number of States are either exempt from participating or are unlikely to elect to participate in all years, **an important share of emissions growth above the baseline will not be offset**."

2.2. Corsia's offsets: ineffective at addressing aviation emissions

None of the offsetting programmes approved by ICAO meet all of ICAO's sustainability criteria and the price as well as excess availability of these offsets are unlikely to stimulate emissions reductions not only within the aviation sector but also in other sectors.

- **Offsetting programmes do not guarantee emissions reductions**

The study recalls that airlines under Corsia need to buy carbon offset credits, which are selected through programmes by ICAO following recommendations from a Technical Advisory Board (TAB). In March 2020 ICAO approved - based on recommendations by the TAB - an initial list of six programmes to supply carbon offset credits for compliance and set out the restrictions on the eligibility of credits for Corsia's pilot phase (until 2023). The pilot phase (2021-2023) and the first phase (2024-2026) of Corsia are voluntary while the second phase (as of 2027) is expected to be mandatory.

The study explains that for carbon credits to effectively offset actual aircraft emissions, it is critical that they guarantee emission reductions that would not have occurred otherwise; are accurately measured, reported, and verified; are permanent; ensure that they will not lead to any increase in emissions elsewhere; and are only claimed once towards any climate target (i.e not double counted). However, the study notes that **none of the programmes approved have comprehensive provisions to avoid such double counting** with pre-2020 commitments, "which **raises concerns with regards to the environmental integrity** of relying on these credits to effectively offset, or neutralise, aviation sector emissions during the pilot phase". The study shows that up to "**113 million of the 240 million new credits for emission reductions to the end of 2020 are at risk of being double-counted** because they are based in countries and sectors that are covered by national emission reduction pledges".

The study also notes that three of the major programs approved by ICAO (CCER, the Clean Development Mechanism, and the Gold Standard) do **not meet the additionality criterion**, which means that the emissions reductions these programs include would have happened anyway with or without Corsia. Despite this the TAB still recommended their eligibility for the pilot phase, further putting in doubt the environmental credibility of these offsets. *(The assessment of Corsia's offsetting programmes is shown in page 101 of the study.)*

INFO BOX: Double counting

The study recalls that ICAO has not yet determined what emissions units will be eligible for compliance use during Corsia's first (2024-2027) and second phases (post 2027). A key risk under the scenario that credits from existing projects are accepted for compliance use in the first and

second phase is that the emission reduction outcomes are also **used towards achievement of the project host country's National Determined Contribution (NDC) targets, thereby double counted**. These climate targets (NDCs) are emission reduction commitments required by the UN from all countries party to the Paris Agreement, in which they outline how they aim to contribute to achieving the temperature goals set in that Agreement. Countries' NDCs are expected to cover all sectors of their economies.

Indeed, the study finds that "a large share of existing projects are delivering emission reductions in sectors that are covered by their respective country's current NDC targets and this share would rise as countries increase the scope of their NDCs over time, in line with the requirements of the Paris Agreement". In effect, finding credible offsets will only become more challenging over time.

The study notes that the TAB's recommendations exclude the use of offsets for emission reductions delivered after the beginning of 2021, presumably due to concerns that avoiding double counting of the emission reductions with the NDCs of project host countries could not be avoided and to allow further time for progress in establishing international rules and process for avoiding double counting under UNFCCC-led negotiations. **However, T&E highlights that as the issue of double counting has still not been solved, Corsia's future environmental integrity is clearly in doubt, as offsets will not effectively mitigate aviation's emissions growth post 2020.**

- **Price & excess availability of offsets unlikely to reduce emissions especially after COVID**

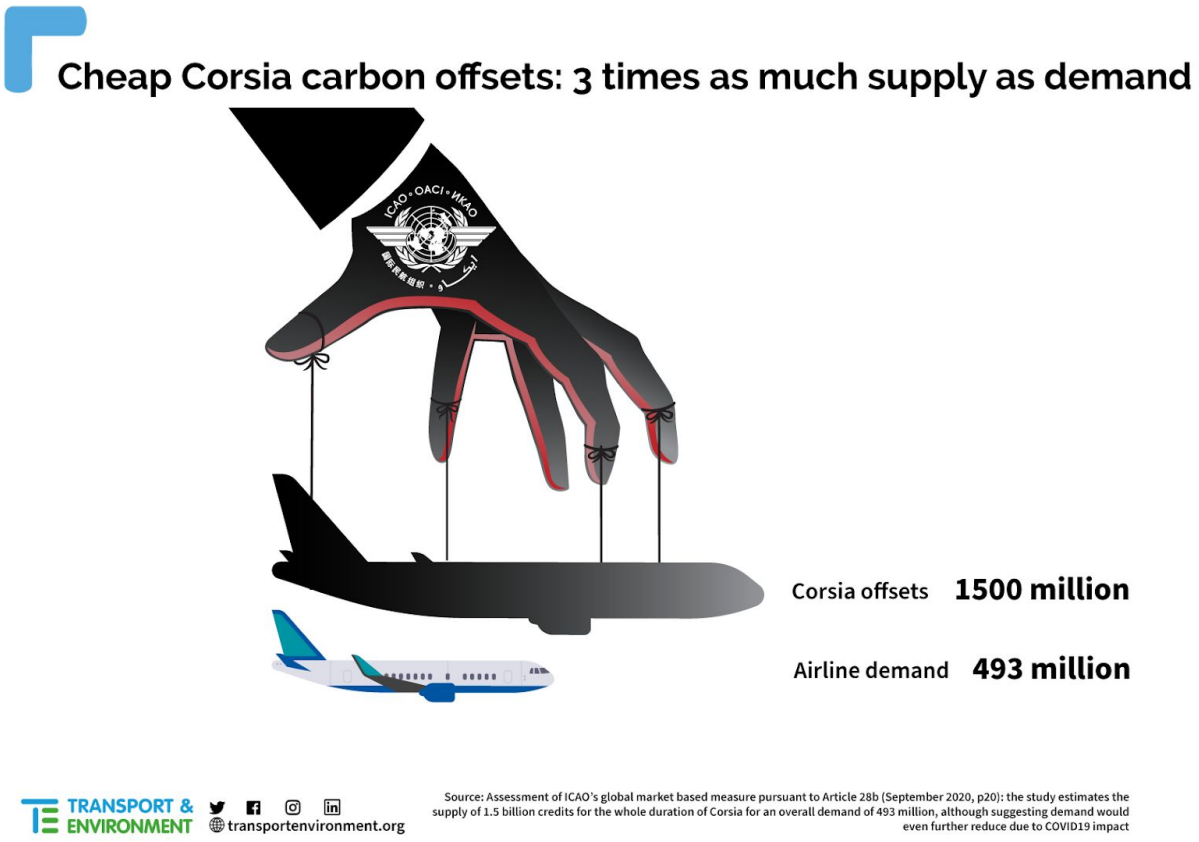
Despite not fully taking into account the potential effects of COVID-19 and associated adjustments to the CORSIA emissions baseline, the authors of the study said they do not "anticipate these to have a particularly material impact on the carbon offset credit demand estimates". The study finds that Corsia will benefit from a **significant excess supply of carbon offset credits** during its pilot phase and that this "excess supply of credits during CORSIA's pilot phase is likely to **be reinforced by the reduction in aviation traffic as a result of COVID-19 as well as the adjustment to the baseline**." Similar assessments in 2020[3] were conducted to find that the demand for Corsia offsets would be 50% lower than originally expected for 2021-2030 mainly because of ICAO's decision to change Corsia's baseline to 2019 only.

The study notes that ICAO's estimate for **demand for carbon offset credits would be 104 million** during the pilot phase (2021-2023). The TAB estimated available supply from existing projects for Corsia's pilot phase to be in the range of **128 to 144 million credits** based on information shared by the respective programmes during the application process. However, the study highlights that existing projects already registered under the major offsetting programmes analysed could **supply**

[3] TAKS (2020), The costs of EU ETS and Corsia for European aviation

approximately 240 million new credits for emission reductions up to the end of 2020. According to the study, a second round of applications for approved programmes is underway, which may accept new programmes and expand the pool of eligible credit supply even further. Taking these numbers, T&E highlights that this would lead to having **more than twice as many offsets than needed to cover airlines' demand in the pilot phase, and three times more for the whole duration of Corsia** (see infogram below based on p20 of the study). T&E highlights that this oversupply of offsets will therefore never lead to higher carbon credit prices as there will always be enough cheap credits to cover demand.

The study even suggests that "the short-term reduction in aviation activity as a result of COVID-19, coupled with the revision of the CORSIA baseline (...) **increases the likelihood that the carbon offset credit demand in CORSIA's pilot phase is zero**".



The study recalls that airlines can also reduce their offsetting obligations through the use of eligible aviation fuels subject to compliance with sustainability criteria. However, it notes that airlines would largely use carbon offset credits "because **they offer a lower cost option compared to the use of**

CORSIA eligible fuels." This means that Corsia wouldn't even incentivise emissions reductions within the aviation sector, as **it is cheaper for airlines to continue polluting and buying offsets than actually reducing emissions by using clean fuels**. T&E also highlights that the sustainability criteria set up within Corsia for alternative fuels also risks promoting the wrong kind of fuels[4].

In terms of price of offsets, the study finds that the Clean Development Mechanism (CDM) will be Corsia's largest source of offset credits, with credits trading in February 2020 at €0.22 per unit. The study adds that "existing projects registered under the **CDM alone** would be able to meet all the demand for CORSIA's pilot phase **at prices at or below €1**".

As a conclusion the study explains that "the implementation of CORSIA **is unlikely to materially impact on international aviation traffic** as the costs of compliance are expected to be a relatively minor share of airlines overall costs (...) and will therefore neither affect demand for air travel, nor key decisions regarding aviation operations".

2.3. Overestimated coverage of emissions & international participation

The study assesses the level of participation in Corsia and subsequent coverage of aviation emissions under the scheme, showing that its environmental impact has largely been overstated.

- **Overestimated environmental coverage of flights under Corsia**

The researchers recall that the coverage of Corsia is **determined on a route basis**. Flights fall under the regulation of Corsia only if they fly a route which both takes-off and lands in participating states. If either the departure state or the arrival state, or both, are not participating in Corsia then that route – and all flights on it – are not covered by it. The study notes that participation in Corsia is voluntary until 2027 and five states have not indicated they will participate until then (China, Russia, India, Brazil, Vietnam). So **any flight to and from these countries would not be covered by Corsia even if departing in a state that said it would participate**. This reduces the number of flights actually falling under the scheme and therefore affecting Corsia's actual climate impact.

The study therefore counters ICAO's metric which **overstates the actual effectiveness of the scheme**: "estimating the global coverage of the scheme according to proxy metrics such as the share of emissions from States' departing flights or from the RTKs (Revenue Tonne Kilometres) of registered aeroplane operators is likely to overestimate the actual coverage."

To illustrate it, the study notes that the 81 States who indicated by July 2019 they would participate from the start of CORSIA account for approximately **77% of the global share of international**

[4]Cerulogy (2019), Understanding the indirect land use change analysis for CORSIA

aviation RTKs. But the study's forecasting indicates that Corsia's coverage of global aviation CO2 emissions – i.e. domestic and international – is much lower across all phases from 2021-2035, as it **would only cover approximately 35% of global aviation CO2 emissions**[5].

As a comparison, the study estimates that implementing the full scope EU ETS (covering both intra-EU and extra-EU flights) would cover **33% of global international aviation emissions in 2025**, and 28% in 2035; in both cases slightly inferior but of **the same order of magnitude as under the low participation scenario of Corsia**. As a comparison, the current EU ETS scope (intra-EEA flights only, excluding the United Kingdom and including Switzerland) covers 5% of global international aviation emissions in 2020.

T&E highlights that unlike Corsia the EU ETS covers domestic aviation within the EU and that it effectively caps emissions. The EU has effectively wasted 8 years of its climate policy by agreeing to "stop the clock" and reduce the scope of its own EU ETS since 2012 when it could have actually delivered a similar level of ambition to ICAO's Corsia scheme.

- **Uncertain international participation within the scheme**

ICAO published the list of the 88 States that will participate in CORSIA from 1 January 2021, including all EU states, those of the European Civil Aviation Conference (ECAC) as well as G7 countries, including the United States of America, Gulf States and South-East Asian States. But, as the study recalls, **countries may also subsequently withdraw their participation** in Corsia so there remains uncertainty regarding which States will actually participate in Corsia from 2022 and thereafter.

The study notes that "for States that are not exempt under CORSIA's second phase, **the extent to which CORSIA would be binding on them is uncertain**". The study says that instruments used for establishing and implementing Corsia are secondary law deriving from ICAO's government charter, the Chicago Convention, but that ICAO member States are able to file "reservations" to Resolutions and notify "differences" to ICAO SARPs (Standard And Recommended Practices) in accordance with Article 38 of that Convention in order to remove any legal obligation for those States to comply. However, it notes that "the ICAO secretariat **has not published filed differences, thus limiting transparency regarding any such differences to third parties**."

Five States have not indicated they will participate, despite them not being exempt in the second phase (China, Russia, India, Brazil, Vietnam). The study recalls that **China and Russia** described the goal of "carbon neutral growth" from 2020 and **Corsia as 'morally unfair'**, India also opposed the

[5] The study notes that CORSIA would cover approximately 351 MtCO2 of the total aviation sector emissions of 977 MtCO2 in 2025 (or 36%); 386 MtCO2 of the total of 1,139 MtCO2 in 2030 (or 34%) and 417 MtCO2 of the total of 1,270 MtCO2 in 2035 (or 33%).

scheme's objective. For the USA, the study highlights that "while the USA - which has the second largest share of global international aviation activity (11.4%), behind China - has expressed its intention to participate, it **stressed that its continued support for CORSIA assumes 'a high level of participation by other countries** (...) This suggests that the **USA may not participate in CORSIA if other countries with high shares of international aviation activity, such as China and Russia**, also do not participate."

The study notably highlights that in the United States, the Federal Aviation Administration implemented the Monitoring Reporting Verification rules of Corsia "through a **voluntary program** - **likely to avoid having to pass the rules through the legislative process**". So US airlines are not legally obliged to participate in Corsia as US implementation rules are "voluntary" for the time being.

The international coverage of emissions by Corsia is necessary to ensure any potential environmental effectiveness of the scheme, but the study shows that international governments representing important shares of aviation emissions are unlikely to implement Corsia in a binding way, which once again highlights how ineffective it will be to regulate aviation emissions.

2.4. Overall lack of transparency and enforcement of Corsia

- **Lack of public transparency:** The study notes that ICAO does not have a specific freedom of information policy, but decides on publication on an ad hoc basis and has no mechanism for members of the public to request unpublished documents. Even though the study recalls that a verification body is meant to verify the accuracy and compliance of Corsia by airlines, it highlights that they are obliged to respect the **confidential nature of the data**, which means that **neither ICAO, nor other airlines, nor the general public will know any of the following pieces of information**: the ratio of alternative fuels to emissions units surrendered for compliance, what kind of offsets have been surrendered, if airlines have actually surrendered enough offsets. In addition, the study highlights that countries are recommended to and **not obliged to publish total final offsetting requirements for each airline and the total quantity of emissions units surrendered by each airline**. The researchers explain that "this leads to questions of competition and fairness as important stakeholders will **not know if a level playing field is established** where all CORSIA participating states are enforcing CORSIA equally robustly".

- **Non binding nature of Corsia rules:** The rules setting up the structure of Corsia (SARPs) only receive binding force through their transposition into national, or regional law (for example, in the case of the EU) in the absence of which they can be considered as 'soft law'. The study recalls that countries may file differences between the elements of the SARPs and national regulations, but "whilst the filing of differences and ICAO audits can serve to highlight

non-compliance with the CORSIA SARPs, ICAO has **no instruments at its disposal to enforce compliance**." Unlike Corsia, the study notes that "the implementation of the EU ETS led to the adoption, in many of the European Member States, of strict sanctions to the inobservance of the EU ETS, ranging from administrative fine to the potential blacklisting of the operator".

The study therefore finds that Corsia will be ineffective in regulating emissions "because **participation in CORSIA is likely to be partial**, rather than complete, and the ability of ICAO to enforce compliance with the scheme is limited. Furthermore, it **cannot be guaranteed that all carbon credits used to offset the actual growth in international aviation emissions** reflect accurately **measured real and permanent emission reductions** that would not otherwise have occurred, i.e. that they are of high environmental integrity."

This lack of transparency and inability to enforce its rules calls into question not just ICAO's Corsia scheme, but ICAO's role in addressing aviation's climate impact. T&E highlights that a toothless and non-transparent body such as ICAO will clearly not be able to adopt and enforce the sort of ambitious measures needed to eliminate the climate impact of flying.

3. Assessment of the EU's policy options for the EU ETS

The study also models the environmental and socioeconomic impact of the European Commission's policy options for the upcoming revision of the EU ETS. It concludes that "if the EU is to participate in CORSIA, and simultaneously **replace part**, or **all**, of its existing regulation for aviation, it is unlikely that aviation will substantially contribute to the 90% reduction in transport emissions and risks undermining the ability to reach net-zero emissions by mid-century".

3.1. Full scope EU ETS brings highest environmental & economic benefits

The study assesses option 1 of the Commission's impact assessment, which restores the EU ETS for aviation to full scope (i.e. all flights to, from and within the EU/EFTA region, including to and from outermost regions) from 2024. This option is associated with **the largest decrease in intra-EU/EFTA and global net aviation CO2**. The study shows that the option causes the **largest decrease in demand** compared to the other policy options analysed **even though cost impacts are still projected to be relatively small for airlines**. The study estimates that overall macroeconomic impacts of the different policy options are small, when evaluated through impacts on the aviation sector, fuel supply sectors, and through linked supply chains and associated multiplier effects: **less than 0.05% in terms of both value added and employment in all cases at the EU27 level**.

The study's modelling even suggests that out of all policy options, when taking into account the effect of ETS revenue recycling to increase government expenditure or reduce taxes, extending the EU ETS

to cover all flights (Option 1) would have **the greatest positive impact on EU27 employment and GVA** (Gross Value Added, including Gross Domestic Product). The study explains that by recycling revenues from the EU ETS, governments can reduce direct and indirect tax rates (including income tax, employers' social security contributions and VAT) therefore contributing to stimulating countries' economies.

On the contrary, option 3 – Corsia only – of the Commission's assessment removes aviation completely from the EU ETS and the study estimates this option to be associated **with the biggest global net aviation CO2 emissions increase**. The study notes that there is also a risk of **even higher net aviation CO2 emissions** in the case that ICAO fails to address issues relating to the environmental credibility of the offsets used.

It mentions that the full scope EU ETS option would amount to the EU's non-participation in CORSIA, which is not in line with the EU's previous statements but recalls that "**the EU has reserved its full policy autonomy by filing differences to the CORSIA SARPs**".

It concludes that "participating in CORSIA – and **leaving all international aviation (as defined by ICAO, including that between EEA countries) outside the scope of the EU ETS** – would risk (...) weakening current EU climate policies."

3.2. Carbon costs can be passed through to consumers

The study notes that costs imposed by the EU ETS and Corsia could influence airline network development but actually shows that the carbon cost will likely be a relatively small factor in route profitability studies. It adds that many airlines will pass the majority of the additional carbon cost on to the passengers, manifesting in higher ticket fares but still small compared to the total expenditure of a holiday or a business trip.

The study estimates that airlines on average can pass-through around 74% of carbon costs for intra-EEA flights, around 75-82% for extra-EEA flights, 74-77% on routes to and from EU outermost regions (depending on the carbon cost applied).

3.3. T&E recommendations

- This study's findings should encourage the European Commission to ensure upcoming legislative proposals do not replace the EU ETS by Corsia and **re-integrates long haul aviation emissions in the ETS**, by going back **to full scope EU ETS**, especially as the change

to Corsia's baseline year due to COVID19 has further cheapened the scheme[6], resulting in no financial or environmental impact for complying airlines.

- The EU should strengthen the EU ETS for aviation by not only **removing free allowances** and putting a **hard cap on aviation emissions** but also by setting up a Fund supporting the deployment of sustainable fuels for aviation (such as e-fuels)[7].

- The EU and member states **should stop wasting their resources within ICAO**, and reintegrate international aviation emissions within the scope of their climate targets rather than focusing on setting long term aspirational goals for the sector.

- Other climate policies should also be implemented to stimulate the uptake of clean fuels and zero emissions aircrafts, such as **introducing kerosene taxation** and **deploying sustainable fuel mandates, focusing on e-kerosene.**

***

Further information

Jo Dardenne
Aviation Manager
Transport & Environment
jo.dardenne@transportenvironment.org
Mobile: +32(0)475768431

[6] T&E (2020), The costs of EU ETS and Corsia for European aviation
[7] T&E (2020), How EU legislation can drive an uptake of sustainable advanced fuels in aviation