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Carbon emissions reductions in aviation

Is this the end of the low-cost flight era?

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Human-induced climate change has triggered the adoption of measures across the world with the intention of reducing our CO_2 footprint. Although shipping and aviation were initially exempt from such measures, over the last decades authorities around the world have changed their views and aligned these sectors with other industries. This is because the share of greenhouse gas emissions from international aviation rose rapidly in recent decades, with the sector now contributing to around 4% of the European Union (EU)'s total greenhouse gas emissions[1]. Additionally, prior to the COVID-19 pandemic, the International Civil Aviation organization (ICAO) predicted that in comparison to 2015, international aviation emissions could triple by 2050. This has placed increased focus on the industry to help address the climate crisis.

The growth of modern aviation came along in the 1990s through the introduction of new, low-cost business models. Through the de-regularisation of air transport, such business models were encouraged in Europe and the US. This permitted any European airline to fly to any European destination, bypassing major airport hubs like Rome, Paris, etc. Our skies witnessed the creation of numerous non-State controlled airlines, marking the end of decades where a flight was considered a luxurious, not-so-accessible experience. In fact, although it is now normal to fly from Treviso to Bordeaux, or from Copenhagen to Trapani, this was not possible a few decades ago with most flights having to pass through major European hubs. This used to restrict slots availability, with an inevitable reflection on ticket prices. The new open skies, low-cost phenomenon increased the offer of flights and aircrafts flying above our heads.

Aviation will now have to face new challenges prompted by a more environmentally conscious approach.

Over the last decade the EU and the global aviation community have pooled resources to construct a decarbonisation pathway for the sector, with some of the regulatory tools being the **European Trading Scheme (ETS), Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)**, and the proposed **ReFuelEU** and **Energy Taxation** Directives.

[1] Reducing emissions from aviation (europa.eu)

What is the EU ETS?

The European Union incorporated the aviation sector in its Emissions Trading Scheme (ETS) in 2012[2], following its introduction in 2005. This cap-and-trade scheme is intended to cost-effectively limit greenhouse gas emissions across key sectors such as power generation, energy-intensive industries, and aviation. The scheme works through emission allowances – it sets a limit on the number of emission allowances issued and decreases this cap over time.
Since 2012, all flights from, to, and within the European Economic Area (EEA) – the 28 EU Member States, plus Iceland, Liechtenstein, and Norway – have been included in the EU ETS. All airlines operating in an EU ETS member country, both EU and non-EU, are obliged to monitor, report, and verify their emissions. At the end of each year, airlines must surrender enough allowances to cover their emissions, and any extra allowances left over from a reduction in emissions can be sold to other entities within the EEA. The price of allowances is determined by the forces of demand and supply, and naturally a higher price strengthens the incentive to reduce emissions. Surplus allowances are removed from the market through a Market Stability Reserve that has been in place since 2019;[3,4] a portion of these reserve allowances may be released when the total allowances in circulation falls below a stipulated threshold[5].

[2] After the necessary amendment to the EU ETS Directive was adopted in 2008 (EU ETS handbook, p. 90).
[3] Aviation and the EU ETS (europa.eu)
[4] Market Stability Reserve (europa.eu)
[5] DECISION (EU) 2015/ 1814 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL - of 6 October 2015 - concerning the establishment and operation of a market stability reserve for the Union greenhouse gas emission trading scheme and amending Directive 2003/ 87/ EC (europa.eu)

What is CORSIA?

In 2016, the ICAO launched CORSIA as one of the tools to curb the increase in total carbon emissions from international aviation. In comparison to the EU ETS, CORSIA is an offsetting scheme, which allows airlines to compensate for their excess emissions over the baseline by financing a reduction in emissions elsewhere. CORSIA is a global market-based mechanism, which aims to stabilise global aviation emissions from 2021 onwards and avoid fragmented market-based measures among ICAO members. As illustrated in Figure 1, CORSIA will play a prominent role in the carbon-neutral growth of the aviation sector as from 2020 onwards. However, the International Air Transport Association (IATA) affirms that CORSIA is intended to be a short-to-medium term strategy to stabilise and reduce emissions until low-emission technology can be advanced. In fact, IATA envisages that the need for CORSIA will diminish once new technology such as sustainable aviation fuels (SAF) become more widely available[6].

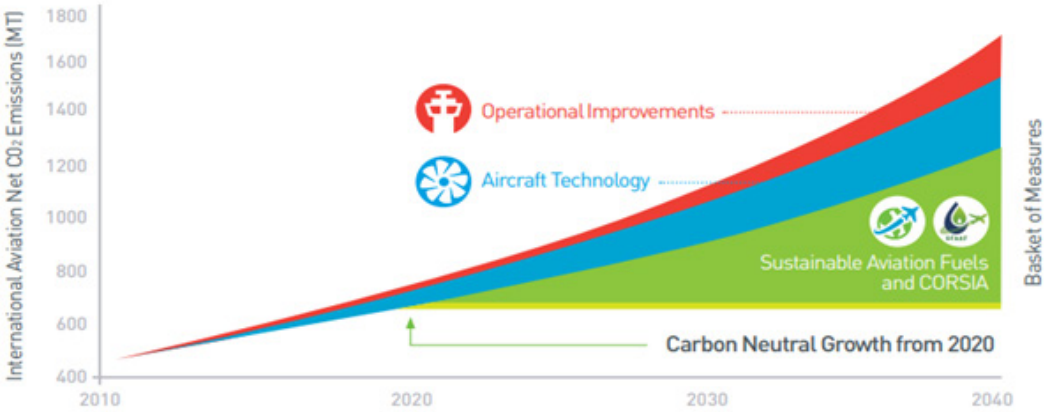

Figure 1: The contribution of different measures for reducing net CO_2 emissions from international aviation[7]

[6] Fact sheet: CORSIA (iata.org)
[7] CORSIA brochure (ICAO)

CORSIA works by allowing airlines to acquire and cancel emission units from the global carbon market. When emissions from flights outside the EEA exceed the predefined benchmark, they will have to be offset with corresponding carbon credits, with each offset credit representing a tonne of CO_2 that has been mitigated. The benchmark was initially set to represent the average of 2019 and 2020 emissions. Yet with the significant decline in aviation activity brought about by the onset of the COVID-19 pandemic, the benchmark for the 2021-2023 pilot phase was amended to reflect the level of 2019 emissions to avoid further burden on the aviation industry.

The implementation of the scheme is split into three phases: participation in the pilot and first phases covering the periods 2021-2023 and 2024-2027 respectively is on a voluntary basis while the second and last phase spanning the period 2028-2035 is mandatory for qualifying countries. To date, 88 countries have volunteered to take part in the scheme, including EEA countries[8].

[8] CORSIA | European Aviation Environmental Report (europa.eu)

The interplay of both schemes

The EU ETS and CORSIA are set to exist in parallel, with the former being applied to intra-EEA flights and the latter applying to extra-EEA flights. This will be brought about by an amendment to the EU ETS aviation rules[9] (proposed by the European Commission in July 2021 as part of the 'Fit for 55' policy package), alongside other revisions the European Commission advanced for the EU ETS including the reduction of allowances by 4.2% each year.[10]

Essentially, the key objective of both EU ETS and CORSIA is the same – a reduction in carbon emissions. Both schemes require airlines to declare their emissions to serve as a basis on which to determine the number of credits to be restored, in terms of either allowances or offsets.

Beyond ETS and CORSIA: the ReFuelEU and Energy Taxation Directives

In addition to the above tools, the European Union has planned the introduction of measures meant to encourage the use of biofuels over fossil-derived fuels by introducing a tax on the latter. Currently fuel used by aircrafts is tax free. Under the proposed ReFuelEU Directive, from 2030, the share of SAF (including synthetic fuels as well as biofuels) distributed by aircraft fuel suppliers across EU airports will gradually increase, and refuelling of aircrafts will occur with the amount of fuel exclusively required for the flight, to avoid excess emissions.[11]

Meanwhile, the revised Energy Taxation Directive will tax fuels based on metrics such as energy content and environmental performance, and not allow fossil fuels utilised to fuel air transport within the EU to be exempt from energy taxation.[12] Going forward, only biofuels used to supply intra-EU flights will be tax free.[13]

Unfortunately, biofuels are far more expensive than fossil-derived fuels and are not available at every airport, particularly in small ones located in remote and peripherical areas of Europe (including Malta). Additionally, these measures are restricted to intra-EU community flights, thus creating an additional burden on airlines operating mainly such type of flights.

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[9] Monitoring, reporting and verification of EU ETS emissions (europa.eu)
[10] EC proposes 4.2% annual cut in ETS emissions cap | Montel (montelnews.com)
[11] Fit for 55: increasing the uptake of greener fuels in the aviation and maritime sectors - Consilium (europa.eu)
[12] Revision of the Energy Taxation Directive (europa.eu)
[13] SAF to be free of EU aviation fuel taxes, leaked report finds | Biofuels International Magazine (biofuels-news.com)

What are the effects of such measures?

Although these measures are laudable in view of their ultimate goals, they have at times been criticised for potentially being ineffective, in particular if the new taxes collected will not be allocated to projects meant to reduce the impact of climate change.

Compliance with the EU ETS, CORSIA and the proposed ReFuelEU and Energy Taxation Directives may translate into higher costs for operators and inevitable price increases for the end users. One must also not forget that European skies are also flown by non-European operators which are exempt from certain rules such as fossil fuel taxation (i.e. if journey starts from outside the EU). Apart from being exempt from certain provisions, the biggest non-European industry players are often funded by their governments. This type of assistance (also known as state aid) allows non-European airlines to absorb extra costs and avoid them being reflected in airline tickets. This price distortion may indirectly induce passengers to choose longer but cheaper flights that include a stop in a non-EU member state to the detriment of European operators, and the environment. For instance, a direct flight from Amsterdam to Riga might end up costing more than a similar flight operating via London (outside the EU). A Malta-Berlin journey via Turkey might also end up being cheaper than the direct alternative – yet more costly to the environment.

Through implementation of European principles of integration and mobility, the aviation industry has eased the process of bringing people together. It has further facilitated the crossing of borders, as well as the growth of tourism in remote areas. Up to a decade ago, prohibitive airline prices would restrict a person to visit their home country a maximum of twice a year. Nowadays, with work and study opportunities existing beyond borders, connecting with friends and family located miles away has come to be viewed as easier and faster. But are people ready to give up on their habits and go back to higher ticketing pricing for the good of our planet? Is the low-cost flight generation set to die? Will people start to favour staycations over going abroad to keep climate warming to a minimum?

In our view, measures should not be limited to taxation but should also include incentives to promote the use of sustainable fuels, technology, and processes that reduce carbon emissions. This may include production of SAF within Europe to protect the market against external geopolitical shocks that might impact the prices and availability of SAF, as has happened with gas in the current geopolitical context. A new approach would also see the inclusion of contrails management systems in parallel with CO_2 reduction policies. Research shows that aircraft contrails have a higher impact on climate change than direct engine CO_2 emissions, due to radiative forcing.[14] Another tool could also see the reduction of air space rights fees. A number of jurisdictions still impose fees that are much higher than in neighbouring countries, resulting in airlines rerouting their journey through longer routes to the detriment of our environment.

The flight path (pun intended) towards clear and cleaner skies is set; although the destination must not change, cultivating a balance between the interests and needs of all stakeholders, including travellers, and mitigation against other impacts, will be pivotal.

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[14] Contrails: How tweaking flight plans can help the climate - BBC News

How is KPMG supporting the local aviation sector?

KPMG in Malta's long-standing association with the sector has seen us support aviation clients navigate multiples issues over the years. Our team is closely following developments on the above-mentioned themes within the aviation sector. KPMG network firms have successfully performed over 3,000 carbon emission SS verification engagements for aviation clients world-wide.

With carbon professionals embedded within KPMG's global transport practice, having the right technical skills, international verification experience in the aviation sector, and the specific knowledge of EU ETS and CORSIA we remain committed to be of support to the sector in the context of the changing regulatory climate.

KPMG can also support aviation companies to develop and refine their ESG strategy, and support with ESG implementation and reporting, such as that required by the upcoming Corporate Sustainability Reporting Directive (CSRD).

For more information about KPMG's Environmental Social and Governance (ESG) Advisory services for the aviation sector, contact:

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