

# **The Potential Financial Impact of CORSIA on Airline Companies & Carbon Markets**

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## **Purpose of Our Research**

Many people already voluntarily offset emissions from their airline travel. But what if a carbon price on aviation emissions becomes mandatory? Would that influence the bottom line of airline companies, and the cost of a ticket? This question led our team to explore this research topic: what would be the potential financial impact of CORSIA on airline companies and also on the carbon markets?

## **Air Travel Emissions and Climate Change**

The growth of commercial air travel is a major contributor to climate change. International aviation accounts for approximately half a billion tons of carbon dioxide emissions a year and the industry's carbon emissions are projected to double by 2035.

## **The Carbon Offsetting and Reduction Scheme for International Aviation - CORSIA**

The Kyoto Protocol first mandated the UN's International Civil Aviation Organization, (ICAO), to provide a solution for managing airline emissions in 1997. After the Paris agreement in 2016, ICAO adopted the world's first industry-wide emission reduction scheme, CORSIA, the Carbon Offsetting and Reduction Scheme for International Aviation.

The scheme allows the airline sector's CO<sub>2</sub> emissions to grow until 2020, after which all additional growth will have to be mitigated through the use of sustainable jet fuel and technological improvements, or offset through the purchase of emission reduction credits. Voluntary participation will start in 2021 with about 90% of states participating, and mandatory implementation starts in 2027. Further details of CORSIA are included in an appendix to this brief.

## **CORSIA's Impact on the Carbon Markets**

Our research focused mainly on the voluntary markets because this is where most transactions occur. Currently, voluntary markets provide offsets with different standards, project types, locations and vintages, all of which account for the wide range of prices for carbon, from under \$1 to \$140 per ton CO<sub>2</sub>e. Due to the high degree of uncertainty around the offset credits that will be accepted under CORSIA, it is difficult to predict an average price for them. However, it is clear that it is currently a buyer's market, with a large number of unsold

credits available. Research also suggests that the impact of demand for offsets from CORSIA will be felt in both voluntary and compliance markets globally. <sup>1</sup>

### **Predicting an Average Carbon Price**

Our financial model tested a wide range of carbon prices from \$3 to \$100. We assumed GHG emissions growth, revenue growth and sector growth rates to be BAU. We did not consider the role of biofuel or fuel efficiency within the model due to high degree of uncertainty and limited disclosure from airlines on these subjects. In addition to modeling various price scenarios, we also spoke with a number of carbon market experts from NGOs, research organizations and commercial airlines. Based on our modeling and interviews, we believe a price in the range of \$10 per ton of CO<sub>2</sub>e to be the most reasonable.

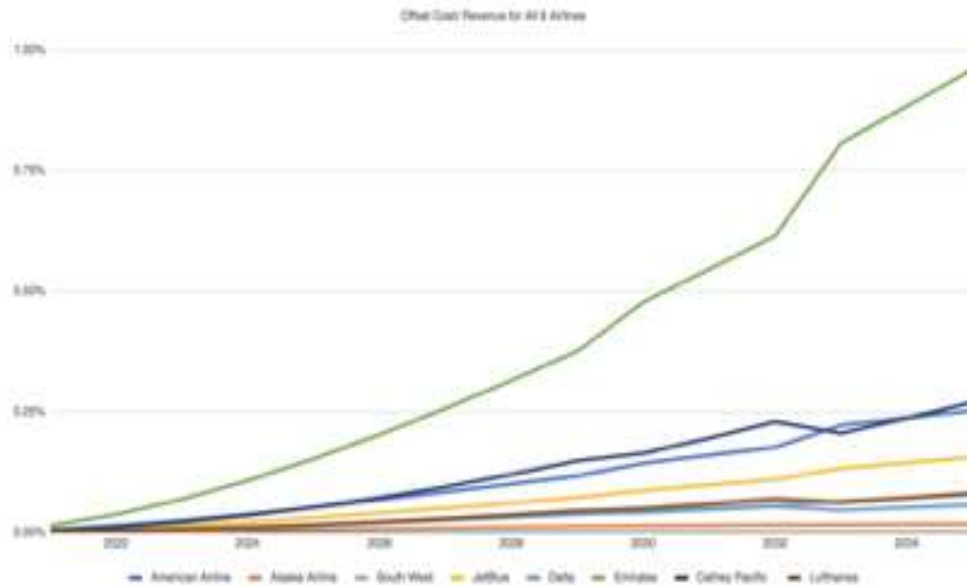
### **CORSIA's Impact on Individual Airlines**

For most of the airlines studied, the impact of purchasing offsets on revenue growth will be under .25%, which confirms ICAO's estimate that impact will be less than 0.5%. <sup>2</sup> Therefore, our modeling indicated a relatively insignificant financial impact overall, depending on the business model of each airline, as well as its share of international flights, growth rate, fleet age, and operational efficiency. Airlines that grow fast and with high GHG emissions will clearly be affected more by CORSIA. Strategies for monitoring, reporting and verification, as well as biofuel and other efficiency measures, may impact reported performance significantly. Finally, any impact on revenue growth will likely have a less significant role than volatility in the price of oil, always a top concern for operators.

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<sup>1</sup> CORSIA has the potential to generate demand for carbon assets of around 2.5 gigatons of carbon dioxide equivalent (GtCO<sub>2</sub>e) between 2021 and 2035, which is comparable to the cumulative volume of Kyoto credits issued so far. (State of the Voluntary Carbon Markets 2017, Ecosystem Marketplace)

<sup>2</sup> *Technical Analysis on the impacts of different approaches for a global market based mechanism (MBM) scheme by the ICAO Council and the Environment Advisory Group (CAEP), 38th ICAO Assembly*



**Conclusions:**

CORSIA can potentially have a positive impact on the environment and carbon market growth; however, robust eligibility criteria for offset credits & biofuel are critical in order for it to succeed. Eligibility Criteria should incentivize emission reductions beyond those that are likely to occur anyway by encouraging the development of new projects and by focusing on projects that are at risk of closing without continued financial support. High participation by ICAO states and enforcement of the governance framework by ICAO is also very important.

**Update:**

In June of 2018, ICAO’s governing council formally adopted a framework to enable CORSIA members to begin implementation of voluntary reduction and offsetting in 2019. While it approved rules for data monitoring, verification, estimation and reporting, it issued no further guidance on eligibility criteria for emission credits and did not provide more information on which aviation fuels will be accepted under the scheme. It left these topics for “future work.” The Council also agreed to extend the definition of sustainable aviation fuels under CORSIA to include lower carbon fossil-based fuels. The decision elicited strong concern from some stakeholder NGOs.

**Appendix A: More Information on the CORSIA Implementation Scheme**

Voluntary participation will start in 2021 with an anticipated 87% of participating states, with mandatory implementation starting in 2027. To provide the highest level of fairness, offset purchasing obligations will be divided between a sectoral approach and an individual approach, gradually moving from sectoral to individual over time. The idea is to allow operators to become familiar with CORSIA while making adjustments to their operations.



In the first 9 years between 2021 through 2029, calculation of carbon offsets will be based on a formula that uses a sector-wide growth factor calculated every year. The sectoral growth factor is common for all operators and does not take into consideration varying sizes of operators and varying levels of emissions growth. The sectoral growth factor for a given year will be multiplied by the operator’s emissions covered by CORSIA to give the operator’s offsetting requirement.

From 2030 through 2032, the offset calculation will also include an individual operator’s emissions growth factor (20%), along with the sectoral growth factor (80%). From 2033 through 2035, these percentages will transition to 70% and 30% respectively.

More About the Baseline: From 2021, CORSIA will offset the increase of emissions beyond the sectoral baseline. The sectoral baseline is the average of total CO<sub>2</sub> emissions between 2019 and 2020, with the route coverage by CORSIA in a given year from 2021. Emissions data for all international flights, regardless of whether or not they are covered by CORSIA offsetting requirements, will be reported to ICAO from 2019 forward.