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Will Covid-19 kill CORSIA?

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Analysis by the Carbon team

Energy Commodities Content and Research

Against a backdrop of dramatically decreased international aviation emissions due to the global pandemic, this month's meeting of the International Civil Aviation Organization (ICAO) Council (June 8-26) will deal with calls to change the baseline of its Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA). Air carriers are hoping to prevent the sector's extremely low 2020 emissions from forming the basis upon which their offsetting obligations are measured under CORSIA, citing additional economic burden on their business. If the baseline is changed from an average of 2019-2020 to 2019-only, it would have a significant effect on what is expected to be among the largest sources of demand for carbon offsets over the next decade and beyond: air carriers subject to CORSIA. This analysis looks at potential demand for offsets if CORSIA's baseline is changed, under various scenarios of the sector's recovery.

INTRODUCTION: PANDEMIC HITS AVIATION SECTOR

Covid-19 was recognised as a global pandemic by the World Health Organization in mid-March. To curb the spread of the infection, governments all over the world implemented travel restrictions that have led to drastic decline in air travel - especially international flights. Aviation as a sector is disproportionately affected: a Nature Climate Change [report](#) analysing six economic sectors over January – April shows that air travel, which accounts for 3 percent of global greenhouse gas emissions, accounted for 10 percent of the decrease in emissions during that period.

In April alone, international aviation activity as expressed in seat capacity decreased by 93 percent according to ICAO reports, meaning there were almost no flights between countries. Europe was one of the regions most affected by governments' air travel restrictions, as European airports serve as global hubs for many international air carriers.

An eventual recovery is expected, but not in the form of a quick "bounceback" to previous air travel levels: estimates put activity in the sector at 50-60 percent of its average by the end of the year. The correlating financial losses burden major international carriers, many of whom are turning to their governments for monetary compensation.

As of mid-May, European airlines have sought €12.8 billion bailouts from their governments according to the [Airline Bailout Tracker](#). As of the end April, the [U.S. government](#) has agreed on a \$25 billion bailout for its airline industry. In addition to this direct government assistance, the aviation industry as a whole is asking ICAO to change the already-adopted rules of its offset programme CORSIA.

CORSIA BASELINE AMENDMENT

Airline operators covered by CORSIA are required to offset their emissions growth above 2020 levels. Starting from

2021 (the scheme's first pilot phase), they must purchase an emission reduction unit for every tonne of CO₂ emitted in excess of the baseline level, which is calculated as average emissions from international flights in 2019 and 2020. CORSIA thus officially "began" in January 2019 because all air carriers must report their annual greenhouse gas emissions from then on - even if they are not subject to offsetting requirements under CORSIA - so that the global baseline can be established.

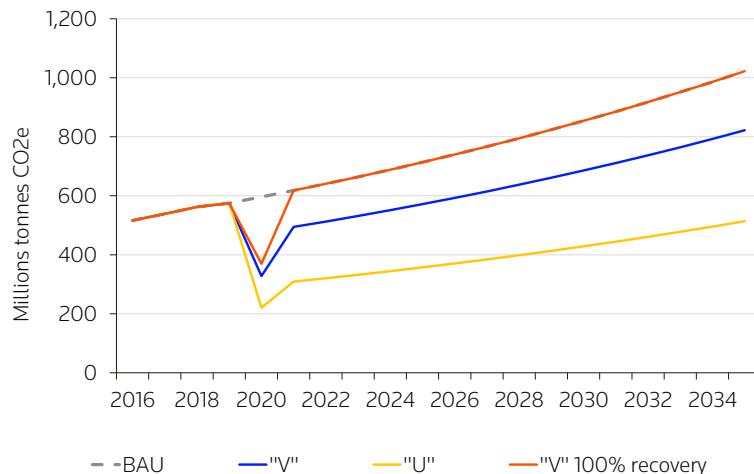
The dramatic decrease in air traffic and the unexpectedly low 2020 emissions due to the corona pandemic makes the baseline from which "growth" is measured much lower than originally planned for. The final number depends on how soon aviation operators will resume their "normal" activity, but after several months of travel restrictions it is becoming increasingly clear that the aviation industry's 2020 emissions will be significantly lower than any business-as-usual (BAU - without coronavirus) scenario.

Lower emissions in 2020 in turn mean a lower CORSIA baseline and thus higher offsetting obligation for operators down the road. On behalf of its members, the International Air Transport Association (IATA) [called on ICAO](#) to change CORSIA's rules - it requests the Council at its meeting starting 8 June to decide only 2019 emissions count as the baseline, with 2020 emissions cancelled from the calculation. IATA argues that extra costs of complying with CORSIA will make some countries reconsider their participation in the voluntary phase of the scheme and discourage others from participating before the mandatory stage starts in 2027, fearing an excessive financial burden on their airlines.

On the other hand, environmental [NGOs](#) argue that eliminating 2020 year from the baseline would erase demand for carbon units during the first years of CORSIA and thus render the scheme ineffective. The Council will attempt to decide on this issue at this June meeting, but any changes to CORSIA may require approval of the [ICAO Assembly](#) since the scheme is already adopted and in force. The Assembly meets only once every three years - its next meeting is not scheduled to occur until 2022, unless ICAO decides to call an extraordinary session.

HOW MUCH COULD OFFSET DEMAND DECREASE?

To analyse the implications of the pandemic-caused emissions drop in 2020 on CORSIA demand, we look at three scenarios of the aviation sector's decline and recovery in the post-pandemic period. Based on annual emissions, we forecast air carriers' potential collective offset demand. We also look at how these scenarios play out if CORSIA's offsetting requirement ends up applying to a 2019-only emissions baseline. Our projections are based on ICAO's data from [mid-May 2020](#), "Effects of novel coronavirus (Covid-19) on civil aviation: economic impact analysis." To translate

Figure 1: emissions projections – three scenarios

Source: Refinitiv

ICAO's metrics of economic impact into emissions impact, we assume that seat capacity reduction equals reduction in aviation emissions.

ICAO's report models several "shapes" of impact for the period of flight suspension in 2020 and potential recovery from that low: the so called "V-shaped" scenario envisages lower pandemic-induced impact and quicker recovery, while the "U-shaped" one assumes the sector will be more heavily damaged and come back more slowly. Each scenario also includes sub-scenarios, or paths with more variations for Covid-19 influence on the aviation activity.

Table 1: Scenario description

	"V"	"U"	"V+100%"
Emission decrease vs. BAU	45%	63%	38%
Capacity recovery in 2020	80%	50%	100%

Of the many pathways ICAO analysed, we model two medium gravity scenarios from both "V" and "U" shaped options, as well as the mildest of the "V" options to show how trajectories would play out under airlines' the most optimistic, moderate and pessimistic recovery expectations. Our business-as-usual scenario assumes aviation emissions growth without demand impact from the corona virus and uses route-based emission data provided by consultancy

RDC Aviation, assuming 3.7 percent average annual emissions growth up to 2035 based on historic average growth rates.

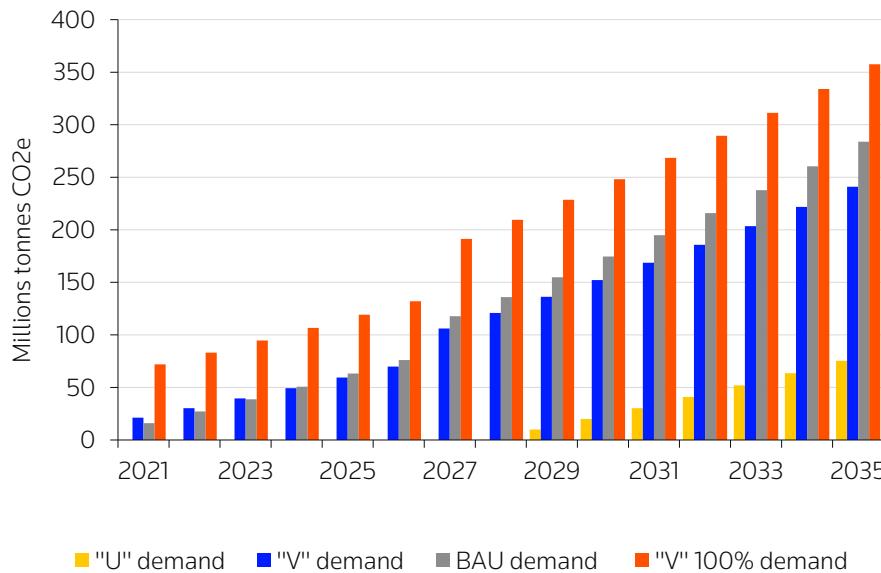
Under scenario "V", we assume that international aviation emissions will decrease by 45 percent compared to the BAU scenario in 2020, and that by the end of the year the sector will recover its capacity by 80 percent (moderate variant). The "U" scenario assumes a 63 percent emission reduction in 2020 vs. the BAU and recovery to only half its original levels by the end of the year (pessimistic variant). The most optimistic scenario, "V+100% recovery", envisages only 38 percent emission reduction from BAU in 2020 and 100 percent recovery by the end of this year. The chart below describes potential emissions decreases in 2020 and emissions growth thereafter, based on the three scenarios described above.

Only in the most optimistic variant do emissions come back to BAU levels in 2021 and keep increasing along the trajectory largely assumed before the pandemic. Under the moderate "V" scenario, aviation emissions reach pre-pandemic levels (i.e. 2019 year) sometime between 2024 and 2025, while under the most pessimistic "U" version, emissions do not reach 2019 levels even by the end of the last CORSIA phase in 2035.

According to our estimates, CORSIA demand for offsets without the effect of Covid-19 would reach close to 82 million tonnes (Mt) during the pilot phase (2021-2023), while air carriers would need to offset about 2 billion tonnes in

Table 2: CORSIA demand under pandemic impact, 2019/2020 baseline

	BAU	"V"	"U"	"V+100%"
Pilot (2021-2023) phase	82 Mt	91 Mt	-	250 Mt
Total (2021-2035)	2 bln tonnes	1.8 bln tonnes	290 Mt	3 bln tonnes

Figure 2: Demand using 2019/2020 baseline

Source: Refinitiv

total for the whole period CORSIA is in effect (2021-2035). This scenario, which was modelled before the pandemic, assumed CORSIA's goal of carbon neutral growth in the aviation sector would be achieved by offsetting 65 percent of emissions growth with the remainder offset through increased efficiency gains and usage of biofuels.

The scenario also assumed that until the start of CORSIA's mandatory phase in 2027, only 76 percent of emissions from international aviation will be covered by the scheme - we excluded flights to and from countries that have not pledged to participate in CORSIA during its voluntary phases, such as China, Russia, India and Brazil. According to ICAO, the CORSIA scheme will cover all international air travels, so for this report we considered flights between EU countries as a part of CORSIA. Demand for offsets under the various scenarios are shown in Figure 2 and Table 2.

The most optimistic scenario ("V+100%") would result in higher demand for offsets than the BAU in both the pilot phase and through the entire CORSIA period due to rapid aviation recovery. Our moderate scenario "V" would see higher demand in the pilot phase and a total CORSIA offset demand slightly lower than under the BAU. Under the most pessimistic "U" option, airline emissions growth would remain under the baseline during the entire voluntary period, meaning no demand for offsets - overall offset demand through 2035 would be quite low.

BASELINE CHANGE MEANS LITTLE TO NO DEMAND

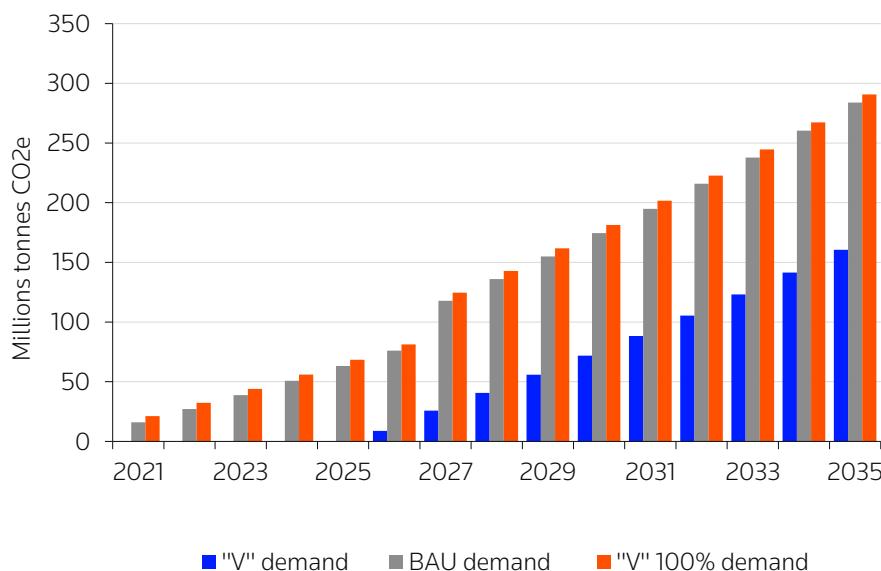
Should the year 2020 be removed from the calculation, CORSIA's baseline would be much higher. It will take much more recovery for carriers to reach annual emissions levels that exceed this baseline, given their low starting point in 2020. Since growth beyond the baseline is what they must offset, there is significantly lower demand for offsets if only 2019 emissions levels constitute the baseline (Figure 3, Table 3).

In our moderate impact scenario, air carriers would have no demand for offsets during the pilot phase, and would only need 822 Mt over the course of the scheme. Only under the most optimistic recovery option would both the pilot phase and the total CORSIA offsetting volumes be close to the BAU levels. Under our most pessimistic scenario - assuming very slow recovery on international flights - emissions will not reach 2019 levels even by the end of the entire CORSIA period, which would mean no offsetting obligations at all.

Earlier this year, the ICAO made public its offsetting eligibility rules for the pilot phase. Various analysts estimated potential supply from carbon offset providers that meet these eligibility rules. The reports concluded that the estimated supply would range between 180 Mt and 570 Mt, sufficient to meet all potential demand from air carriers even under the

Table 3: CORSIA demand under pandemic impact, 2019 only baseline

	BAU	"V"	"U"	"V+100%"
Pilot (2021-2023) phase	82 Mt	-	-	97 Mt
Total (2021-2035)	2 bln tonnes	822 Mt	-	2 bln tonnes

Figure 3: Demand using only 2019 as a baseline

Source: Refinitiv

BAU scenario. It is clear that there is no dearth of offsets for aviation sector emitters, meaning supply constraints are not a factor in air carriers' considerations.

SURPRISINGLY, EU FAVOURS BASELINE CHANGE

Throughout the past decade, the EU countries have favoured ambitious policies to curtail aviation emissions - pushing for ICAO to take action in the sector. It intended to include emissions associated with all flights to and from EU airports in its emission trading system because ICAO was not doing enough to address emissions - this inclusion was put on hold a decade ago as CORSIA was on the horizon. The ICAO scheme is to be revised by the EU officials to find out if it is sufficiently effective at reducing emissions. Within ICAO negotiations around the structure of CORSIA, ICAO's European member countries have historically been among the most ambitious in terms of keeping the scheme's requirements "strict" and eliminating loopholes.

In May 2020, the EU Commission surprisingly [recommended](#) to remove 2020 from CORSIA's baseline calculation, arguing this would help countries adapt to the Covid-19 crisis and support participating countries. The EU Council backs this recommendation. Although the EU's third governing branch - its Parliament - favours maintaining the current baseline for now (at least until the ICAO Assembly in 2022, which is set to review the overall ambition of CORSIA) the legislative vehicle through which the Commission is making its recommendation (Article 218(9) of the Treaty of the European Union) does not require Parliamentary approval.

Though paradoxical given the EU's concern about CORSIA's environmental integrity, the act of backing a baseline

change that makes CORSIA "easier" to comply with is taken in a wider political context: the economic devastation of the global pandemic may cause governments that had signed on to CORSIA's voluntary phase to rethink their participation in the scheme in hopes of sparing their air carriers the economic hardship of having to buy offsets for their emissions growth. Preventing countries that are still onboard with CORSIA from opting out is apparently worth sacrificing some of the programme's ambition, given that the pilot phase starts in January 2021 and already includes few of the big aviation emitters. Each ICAO member country must inform the group about its voluntary participation from 2021 by the end of June. The EU Commission clearly hopes a revised baseline will keep countries that have pledged to participate onboard.

HOT JUNE 2020

We expect the forthcoming ICAO negotiations around this issue to be heated: the ICAO Council will likely have to come up with a decision on the baseline in June, since the countries need to know about such a serious alteration to a resolution they already adopted as soon as possible. The ICAO Assembly may be required to ratify a baseline amendment if the Council adopts it, as a "post-facto official approval." In our view, the odds of adopting a 2019-only baseline are quite strong given the aviation industry's pressure and support from the EU.

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