COMMITTEE ON AVIATION ENVIRONMENTAL PROTECTION

(CAEP)

UPDATE TO
SCENARIO-BASED ANALYSIS OF
POTENTIAL IMPACTS OF COVID-19 ON CORSIA

(referenced in C-WP/15209)

— Executive Summary —

May 2021

Note — This document contains an Executive Summary of the presentation material "Update to Scenario Based analysis of potential impacts of COVID-19 on CORSIA" recommended by the ICAO Council's Committee on Aviation Environmental Protection (CAEP) on 21 April 2021, for consideration by the 223rd Session of the ICAO Council (referenced in C-WP/15209).

1. INTRODUCTION

1.1 Based on the interim updated COVID-19 scenarios from April 2021, CO_2 emissions in 2020 are expected to be lower than originally anticipated in January 2021 with a drop of approximately 54 % from 2019 to 2020 instead of 47%. This lower 2020 level was expected and noted in slide 4 of the C222 presentation. In addition, while the rate of recovery is almost identical for the Low scenario, it is slightly faster for the High and Mid scenarios. See slides 4 – 7.

Updated 2020 emissions estimate:

	CAEP10 (2016)	CAEP/11 (2019)	Reported to C222	Reported to C223
Emissions estimate	680 $MtCO_2$	570 $MtCO_2$	320 $MtCO_2$	280 $MtCO_2$
Change from 2019 to 2020	+ 4.5%	+ 2.6%	- 47%	- 54%

2. CO_2 EMISSIONS NOT EMITTED DUE TO THE REDUCTION IN AVIATION ACTIVITY

Council request: Quantify the volume of CO_2 emissions from international aviation that will not have been emitted due to the reduction in aviation activity compared to forecast activity each year until such time as international aviation fuel burn and emissions equals or exceeds 2019 levels.

2.1 **Response**: The estimated CO_2 emissions not emitted compared to 2019 level is 540 to 1200 $MtCO_2$. Pre-COVID19 offsetting requirements from 2021-2035 were estimated at approximately 2,500 $MtCO_2$ in 2016. See slides 8 – 10.

	Reported to C222	Reported to C223
CO_2 emissions not emitted	530 – 1100 $MtCO_2$	540 – 1200 $MtCO_2$

2.2 **Key takeaways**: Emissions not emitted could represent a significant portion of the 2016 estimated offsetting requirements. Only minor changes since C222.

3. COST IMPLICATIONS OF CORSIA OFFSETTING REQUIREMENTS

Council request: Analyse the cost implications of CORSIA offsetting requirements, taking into consideration the current and expected emission unit prices offered by the Emissions Unit Programmes approved for CORSIA by the Council.

COSTS

3.1 **Response**: Cumulative costs from emissions units from 2021 to 2026 under a mid-price scenario could range from $0.8 to 2.3 billion to $0 to 0.8 billion under an average 2019-2020 baseline and 2019 baseline respectively.

3.2 Total cost could be reduced by $0.05-0.4 billion if emissions reductions from CORSIA Eligible Fuels (CEFs) are claimed, although this does not include the costs associated with acquiring the CEFs. For context, the global aviation industry cumulative revenues from 2015 – 2020 was approximately $3,700 billion. See slides 17 to 20.

Cumulative costs for emissions units from 2021 – 2026 (mid-price scenario):

Baseline	Estimated costs
2019 – 2020 average for 2024 – 2035	$0.8 to 2.3 billion
2019 only for 2024 – 2035	$0 to 0.8 billion

3.3 **Key takeaways**: While a direct comparison to previous estimates has not yet been calculated, costs could be significantly lower than those reflected in the 2016 estimate.

UPATED DEMAND AND PRICE ASSESSMENTS

3.4 Demand for offsetting requirements (from 2021 - 2035):

Baseline	CAEP/10 (2016)	C222	C223
2019 – 2020 average for 2024 – 2035	2,500 $MtCO_2$	1300 – 2500 $MtCO_2$	1600 – 3200 $MtCO_2$
2019 only for 2024 – 2035	Not estimated	400 – 1300 $MtCO_2$	230 – 1700 $MtCO_2$

3.5 Price: Estimated for 2021 – 2026

	CAEP/10 (2016)	C223
High	$20 - $27.8	$9.30 - $15.00
Medium (low in 2016)	$8.7-$12.2	$3.57 - $5.62
Low (alternative low in 2016)	$6.4 - $8.4	$0.90 - $1.45

3.6 **Key takeaways**: Demand for offsetting requirements depends on the baseline option. Prices presented are significantly lower than in 2016.

REGIONAL BREAKDOWN

3.7 **Key takeaways:**

3.7.1 *Demand by FESG route groups (Mid-Covid19 scenario, see slides 11 and 12):*

- Impact of COVID-19 in 2020 resulted in drop in ATK from -28% to -75%;
- Recovery to pre-COVID-19 capacity 2019 could be reached between 2022 and 2024, and
- By 2035, international capacity could grow by a factor of 1.3 to 2.5 relative to 2019 level.

3.7.2 *Offsetting requirements (see slides 14 to 16):*

- All regions show similar relative changes in between 2021 and 2035 compared to pre COVID-19 (i.e., all regions are expected to be affected by COVID-19 in a similar manner).
- The percent of CO_2 emissions offset, which is driven by the participation of States in CORSIA, the CORSIA baseline and the overall growth between 2021 and 2035 on the 40 FESG route groups, is also similar across all regions, except certain regions where there is a relatively higher number of States that are exempted and not voluntarily participating which results in lower percent of CO_2 emissions offset through 2035.

4. **NEXT STEPS**

4.1 In line with C-DEC 222/12, CAEP will provide further input into the Council 224th session. This will include, inter alia (see slide 21):

- updates to traffic and CO_2 emissions forecasts for the 40 CAEP-FESG international route groups; and

- updates on the supply and price of CORSIA eligible Emissions Units to support the analysis on cost implications of CORSIA offsetting requirements as more information is gathered and forecasts of price are refined.

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