CORSIA

Carbon Offsetting and Reduction Scheme for International Aviation

ICAO CORSIA Forum – Session 3

Overview of CAEP analyses on COVID-19 impacts on CORSIA

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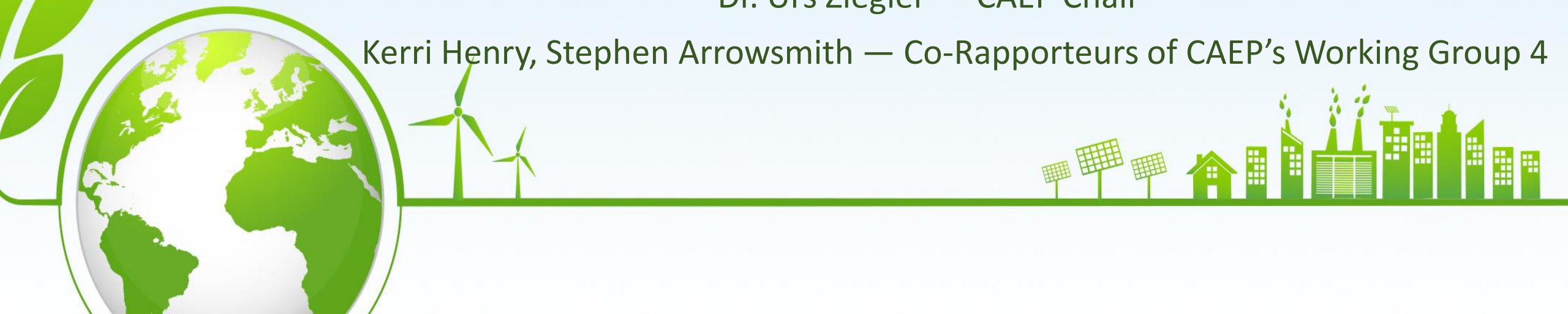


Background of CAEP Analyses

- Since May 2020, CAEP has been providing the ICAO Council with an initial analysis and subsequent updates, regarding the impact of COVID-19 on CORSIA
  - The initial analysis served as input for Council's consideration, and related safeguard decision (June 2020), not to consider 2020 emissions data in the context of CORSIA implementation during the pilot phase
  - CAEP's updated analyses served as input for Council's agreement (March 2021) on the process and methodology for the 2022 CORSIA periodic review
  - In March 2021, the Council requested CAEP to provide updated analyses at subsequent sessions of the Council

CAEP Analyses (June 2021)

- In June 2021, the ICAO Council considered an updated CAEP analysis of the impact of COVID-19 on CORSIA, drawing upon ICAO's ongoing work to analyze the economic impact of COVID-19 on aviation including the regional breakdown and recovery scenario modelling, including:

    1. quantification of 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; and

    2. an analysis of 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

CAEP Analyses (June 2021)

- The complete updated CAEP scenario-based analyses on potential impacts of COVID-19 on CORSIA and its executive summary, as presented to the 223rd session of the ICAO Council in June 2021, is available in the ICAO CORSIA website (section “CORSIA and COVID-19”):

https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIA-and-Covid-19.aspx

- The following slides provide the highlights of these analyses

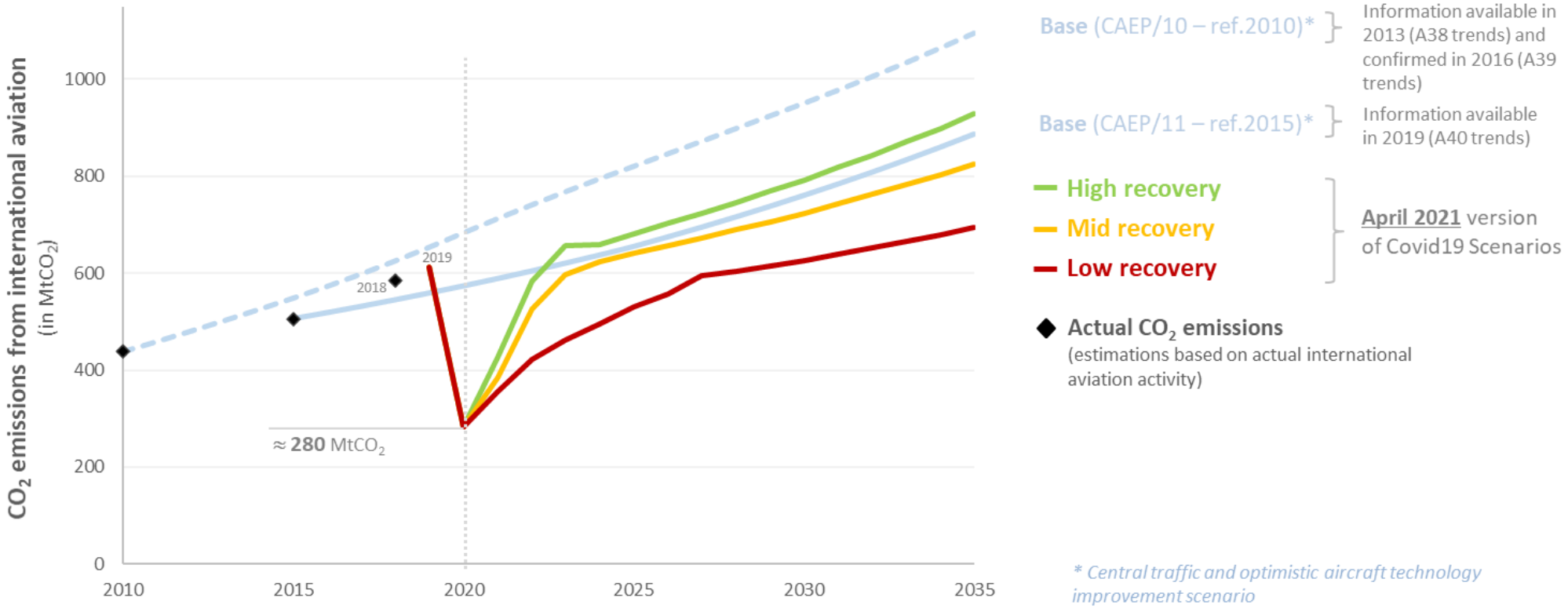
CAEP Analyses (June 2021) — Recovery Scenarios

- Based on the latest COVID-19 scenarios (April 2021), CO_2 emissions in 2020 are expected to show a drop of approximately 54% from 2019 to 2020

	Estimate of 2020 CO_2 emissions from international aviation		
	2016 estimate (CAEP/10)	2019 estimate (CAEP/11)	April 2021 estimate
Emissions	680 $MtCO_2$	570 $MtCO_2$	280 $MtCO_2$
Change from 2019 to 2020	+ 4.5%	+ 2.6%	- 54%

CAEP Analyses (June 2021) — Recovery Scenarios

- Latest data shows a drop in 2020 from 608 $MtCO_2$ to 280 $MtCO_2$



** Central traffic and optimistic aircraft technology improvement scenario*

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CAEP Analyses (June 2021) — Question 1

- Question 1 addressed by the CAEP analyses:

    1. quantification of 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

CAEP Analyses (June 2021) — Question 1

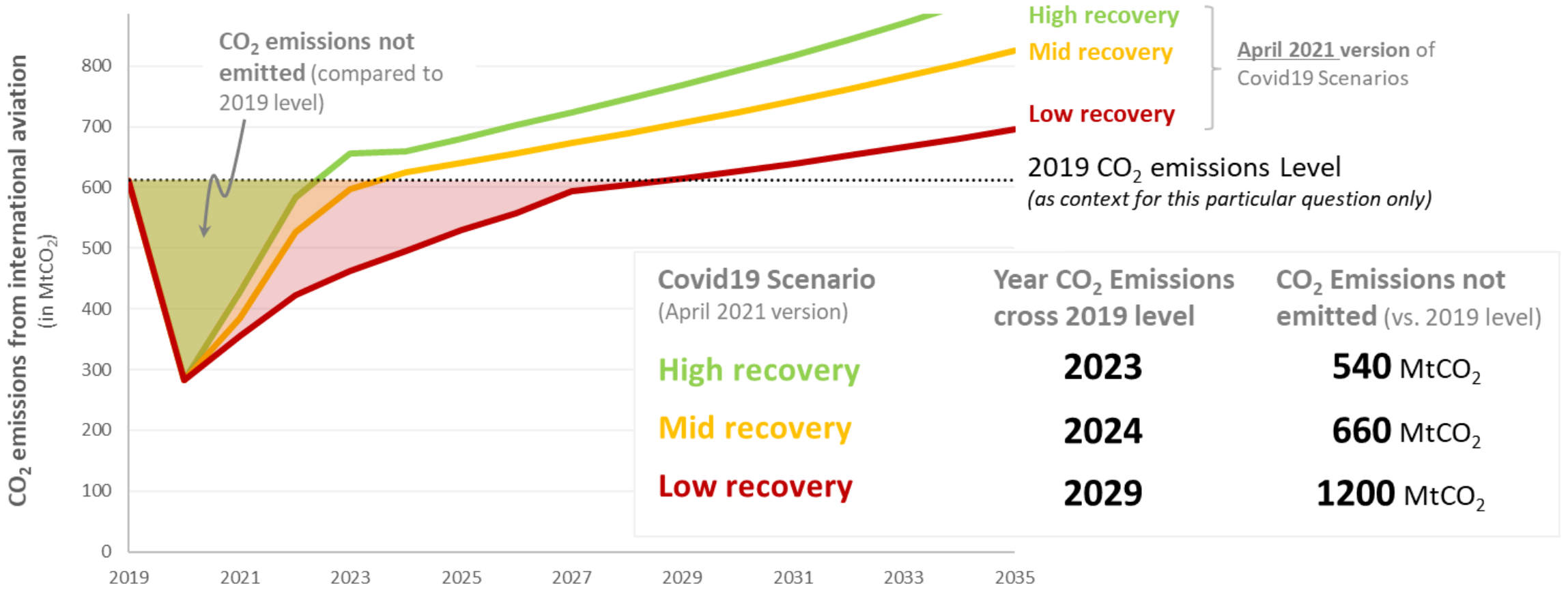
- CO_2 Emissions not emitted compared to 2019 level

  —Based on the interim updated scenarios, CO_2 emissions not emitted compared to a 2019 level could range from 540 to 1200 $MtCO_2$ depending on the rate of recovery

  —For context, in 2016 (pre COVID-19) offsetting requirements from 2021-2035 were estimated at approximately 2,500 $MtCO_2$

CAEP Analyses (June 2021) — Question 1

- CO_2 Emissions not emitted compared to 2019 level



Covid19 Scenario (April 2021 version)	Year CO_2 Emissions cross 2019 level	CO_2 Emissions not emitted (vs. 2019 level)
High recovery	**2023**	**540** $MtCO_2$
Mid recovery	**2024**	**660** $MtCO_2$
Low recovery	**2029**	**1200** $MtCO_2$

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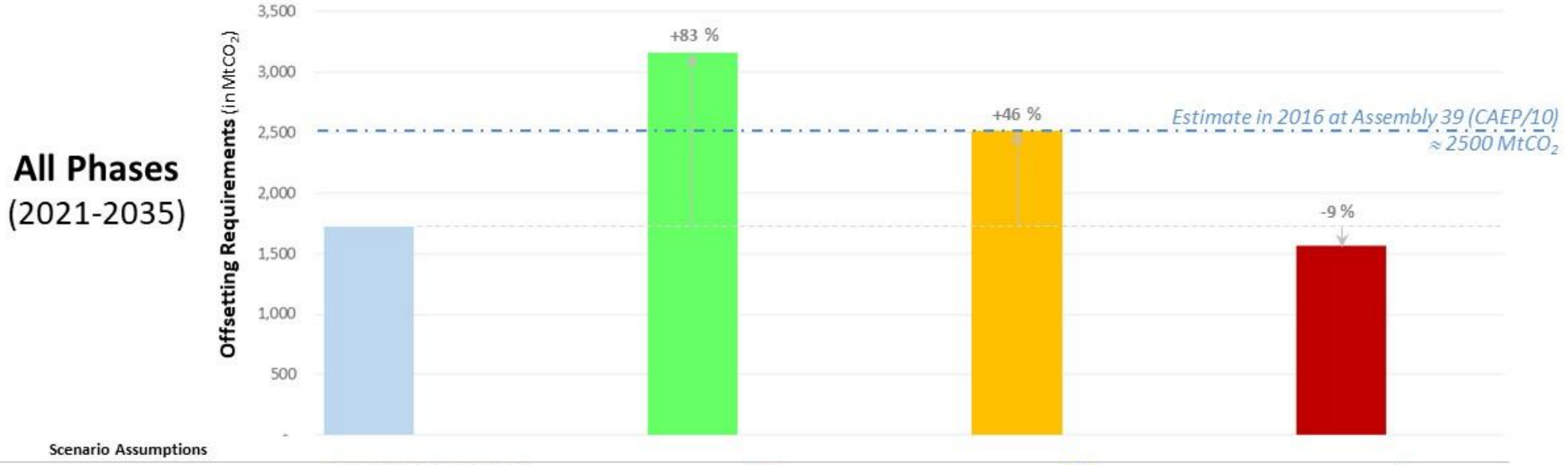
CAEP Analyses (June 2021) — Question 2

- Question 2 addressed by the CAEP analyses:

2. an analysis of 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

CAEP Analyses (June 2021) — Question 2

- Estimation of CORSIA offsetting requirements
  - — Under a scenario of average 2019-2020 baseline for 2024-2035, offsetting requirements (OR) could range from 1600 to 3200 $MtCO_2$



Scenario Assumptions				
CO_2 Emissions Trends	Base (CAEP/11 ref. 2015) No Covid19 Scenario	High Covid19 Recovery Scenario	Mid Covid19 Recovery Scenario	Low Covid19 Recovery Scenario
CORSIA Baseline (2021-2023)	2019 (only)	2019 (only)	2019 (only)	2019 (only)
CORSIA Baseline (2024-2035)	Avg 2019 -2020	Avg 2019 -2020	Avg 2019 -2020	Avg 2019 -2020

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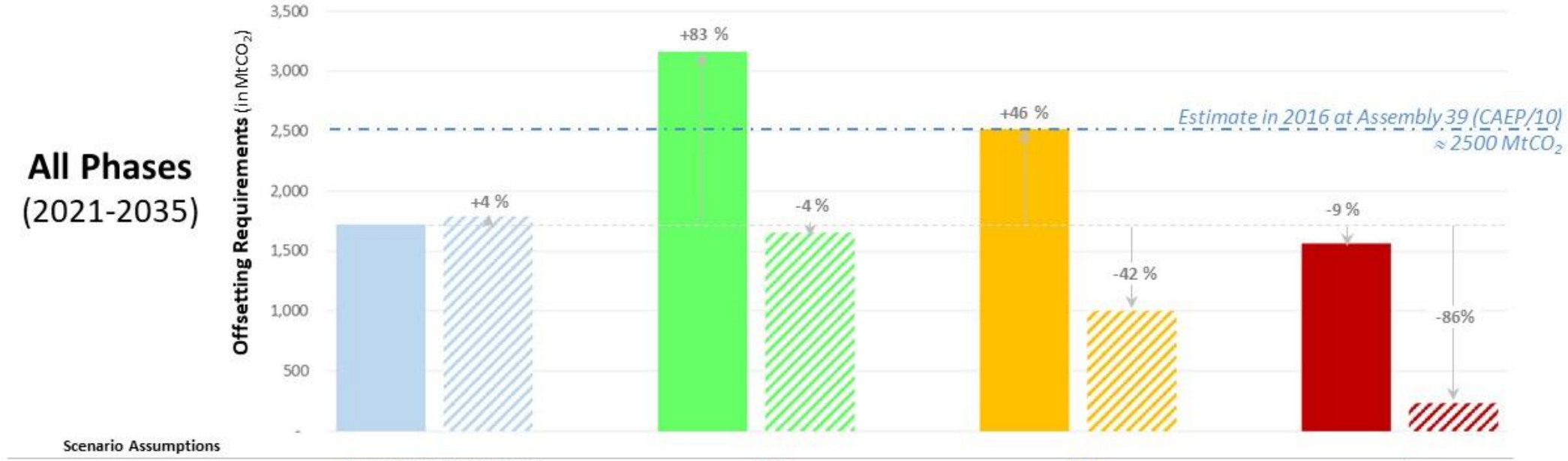
CAEP Analyses (June 2021) — Question 2

- Estimation of CORSIA offsetting requirements
  - — If the baseline remains at 2019 level for 2024-2035, offsetting requirements could range from 230 to 1700 $MtCO_2$



Scenario Assumptions								
CO_2 Emissions Trends	Base (CAEP/11 ref. 2015) No Covid19 Scenario		High Covid19 Recovery Scenario		Mid Covid19 Recovery Scenario		Low Covid19 Recovery Scenario	
CORSIA Baseline (2021-2023)	2019 (only)	2019 (only)	2019 (only)	2019 (only)	2019 (only)	2019 (only)	2019 (only)	2019 (only)
CORSIA Baseline (2024-2035)	Avg 2019 -2020	2019 (only)	Avg 2019 -2020	2019 (only)	Avg 2019 -2020	2019 (only)	Avg 2019 -2020	2019 (only)

CAEP Analyses (June 2021) — Question 2

- Updates estimate of CORSIA offsetting requirements (2021-2035)

Baseline	CAEP/10 (2016)	June 2021
2019 – 2020 average for 2024 – 2035	2,500 $MtCO_2$	1600 – 3200 $MtCO_2$
2019 only for 2024 – 2035	Not estimated	230 – 1700 $MtCO_2$

CAEP Analyses (June 2021) — Question 2

- Updated emissions unit price assessment (2021-2026)

Price scenario	CAEP/10 (2016)	June 2021
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

CAEP Analyses (June 2021) — Question 2

- Cost implications of CORSIA offsetting requirements

  —Cumulative costs from emissions units from 2021 to 2026 under a mid-price scenario could be as follows:

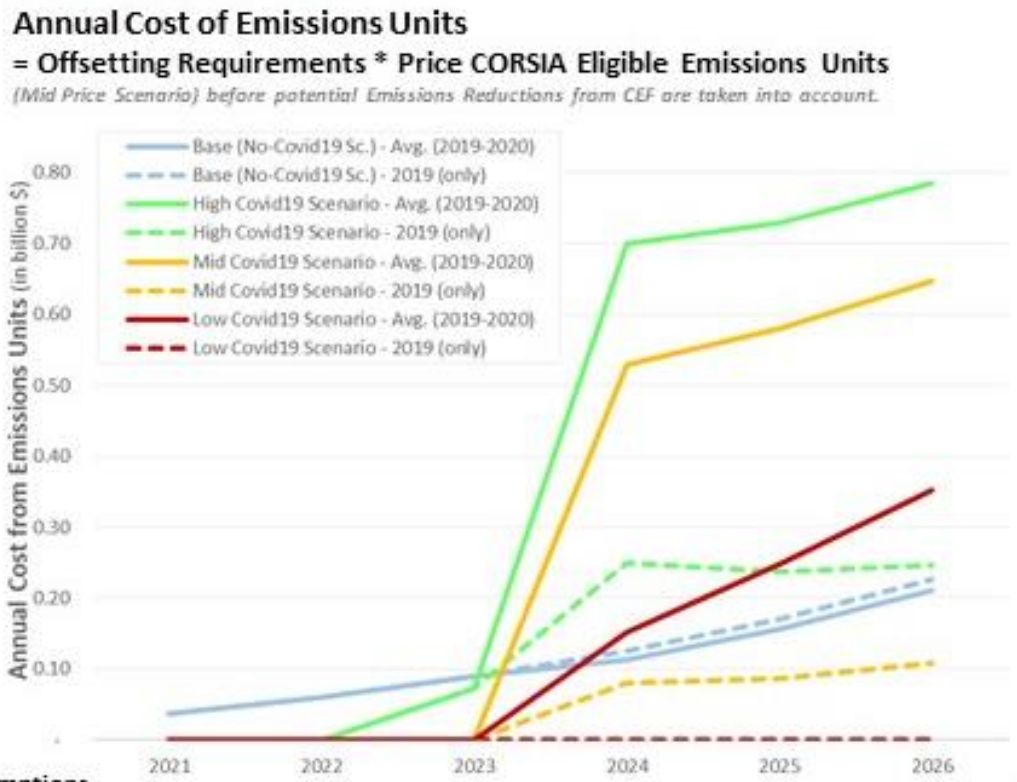
  a) from $0.8 to 2.3 billion under an average 2019-2020 baseline from 2024

  b) from $0 to 0.8 billion under a 2019 baseline from 2024

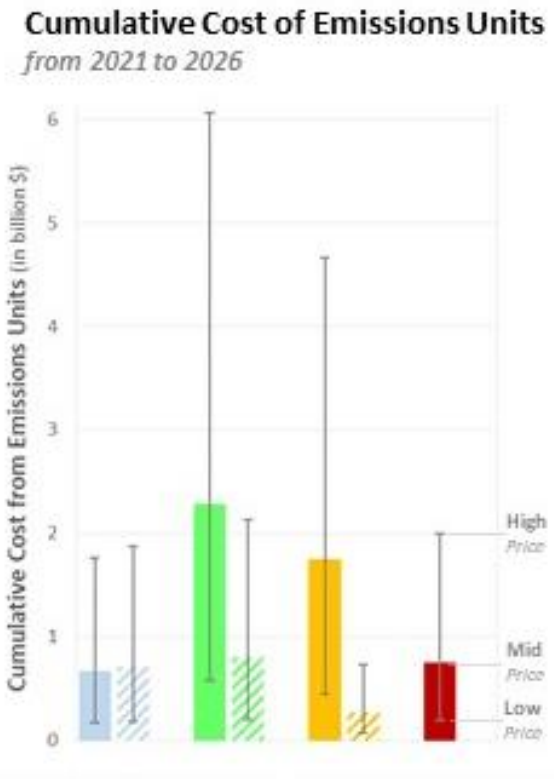
  — Total cost could be reduced by $0.05-0.4 billion if emissions reductions from CORSIA Eligible Fuels (CEFs) are claimed, although this does not include the costs associated with acquiring the CEFs

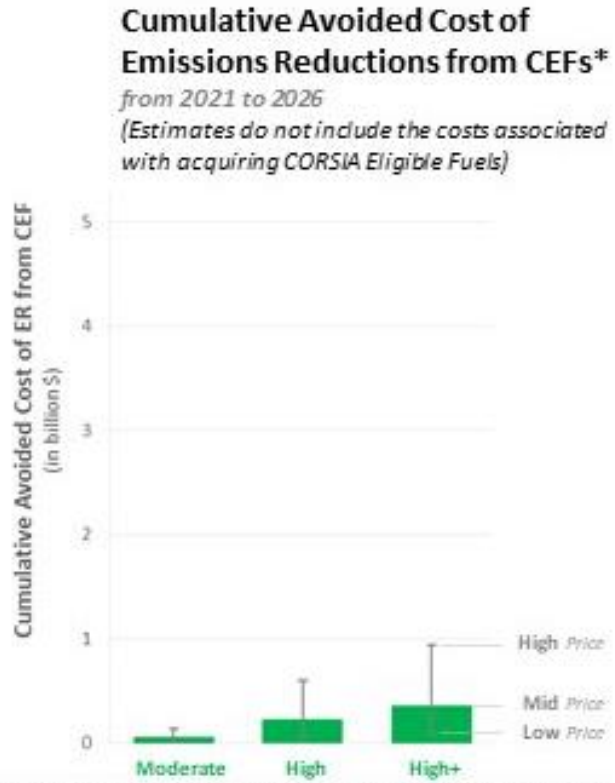
CAEP Analyses (June 2021) — Question 2

- Cost implications of CORSIA offsetting requirements



Assumptions						
Mid Price	$3.57	$3.91	$4.28	$4.69	$5.14	$5.62





*Cumulative avoided costs of emissions reductions from CEFs represent the costs avoided if Emissions Reductions from CEF were not claimed under CORSIA and Emissions Units were used to meet offsetting requirements.

**Reference: IATA, Industry Statistics, Fact Sheet, available at: www.iata.org/en/iata-repository/pressroom/fact-sheets/industry-statistics/

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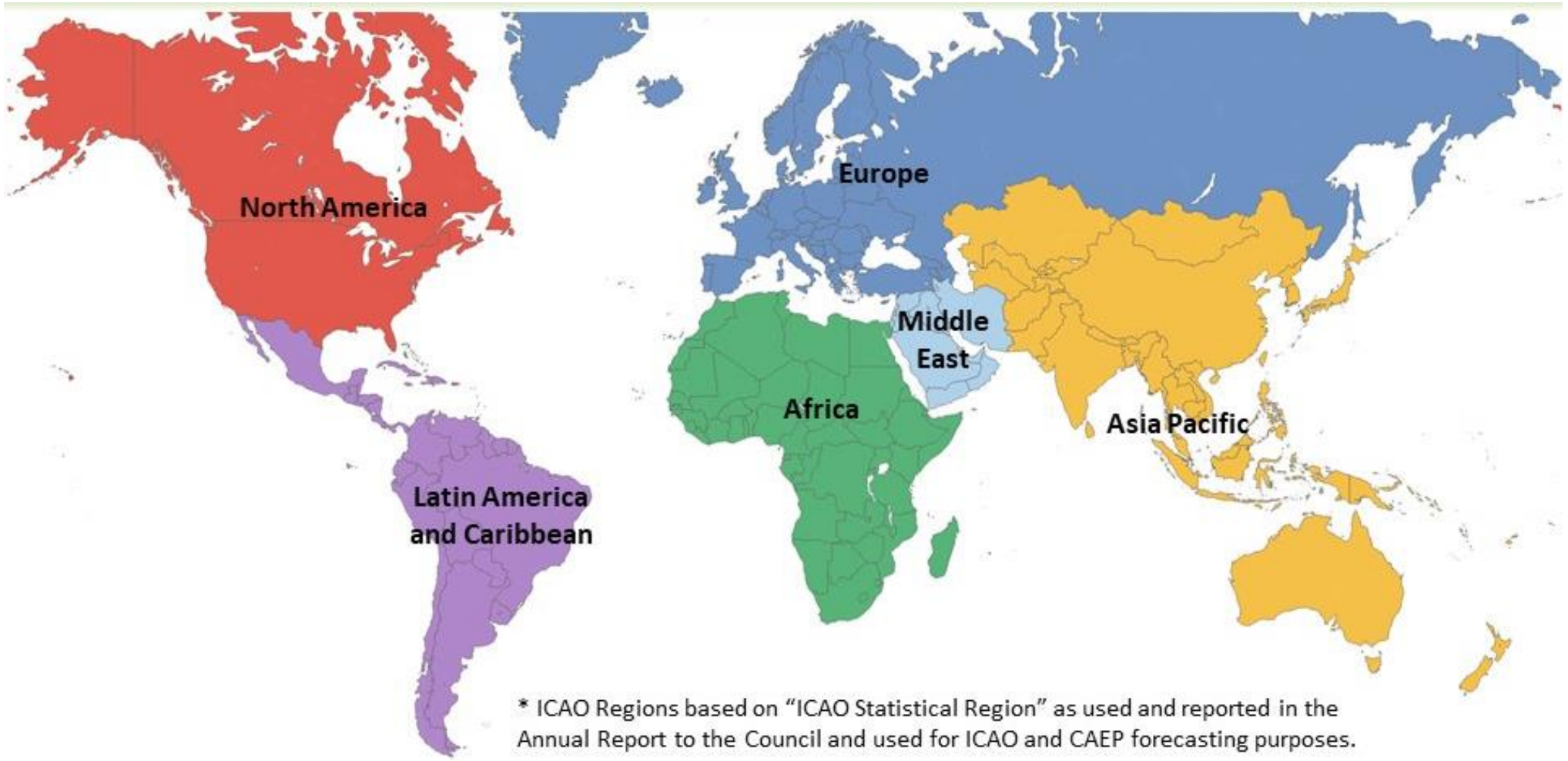
CAEP Analyses (June 2021) — Question 2

- Regional breakdown:



CAEP Analyses (June 2021) — Question 2

- Regional breakdown:

  — 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 route groups considered, 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

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CAEP Analyses — Next Steps

- In October 2021, the Council is going to consider an updated CAEP analysis which includes the following inputs:

  i. assessment of CORSIA's market and cost impact on States and aeroplane operators and on international aviation, including analysis of possible market distortions

  ii. further assessment of the impact of COVID-19 on CORSIA, including inter alia, its impact on the baseline beyond the pilot phase, on the different phases of CORSIA implementation, and on the growth factors

CAEP Analyses — Next Steps

- In October 2021, the Council is going to consider an updated CAEP analysis which includes the following inputs:

  iii. analyses of forecast prices for CORSIA eligible emissions units through 2026, while drawing upon input from TAB on unit supply

  iv. CAEP's initial assessment on the implementation of CORSIA by States, particularly the functioning of MRV provisions and the effectiveness of monitoring methods, based on lessons learned from implementation since 1 January 2019, and CAEP's initial suggestions for improvements to the scheme

- CAEP will continue to provide inputs as requested by the Council

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THANK YOU