Impact of COVID-19 on CORSIA

Annie Petsonk, International Counsel
Pedro Piris-Cabezas, Director, Sustainable Int. Transport & Lead Senior Economist
Maggie McCallister, High Meadows Fellow

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1995
UNFCCC unable to reach agreement on how to allocate emissions of international transport.

1997
At airlines’ request, COP asks ICAO to act.

2008
ICAO inaction. EU puts aviation in EU-ETS from 2013.

2012
Airlines lobby US Congress which enacts EU ETS Prohibition Act. Trade war if EU goes ahead.

2009-2010
Airlines sue to stop EU; IATA calls for cap on int’l emissions from 2020 (carbon-neutral growth from 2020).

2013
EU “stops the clock” on ETS pending ICAO action.

2016
As requested by airlines, ICAO adopts CORSIA, sets baseline at 2019-2020 average despite warnings of risks of using future rather than historical base years.

How did we get here?
CORSIA’s Offsetting Formula

ICAO Resolution Paragraph 11:

“Recalls its decision at the 39th Session that the amount of CO2 emissions required to be offset by an aeroplane operator in a given year from 2021 is calculated every year as follows:

A an aeroplane operator’s offset requirement = [% Sectoral x (an aeroplane operator’s emissions covered by CORSIA in a given year x the sector’s growth factor in the given year x that aeroplane operator’s growth factor in the given year);

B Where the sector’s growth factor = (total emissions covered by CORSIA in a given year – average of total emissions covered by CORSIA between 2019 and 2020) / total emissions covered by CORSIA in the given year
EDF’s Assumptions

**Numbers**

According to the most recent ICAO Council “Global Environmental Trends” document, emissions in 2019 were approximately 555 MMT (million metric tonnes) of CO2.

**Coverage**

We estimate that, during the Pilot Phase (2021-2023) and phase 1 (2024-2026), participation will cover roughly 60% of sectoral emissions above 2020 levels; over the full program (2021-2035), participation will cover roughly 80%.

**Base Case**

Using the Trends’ “Low Aircraft Technology” scenario, we calculate a Pre-Covid19 Pilot Phase Anticipated Demand with 2019-2020 Baseline of 78 MMT for the covered routes (2360 MMT for full program demand).
“ICAO has estimated that aviation will have to offset about 2.5 billion tonnes of CO₂ between 2021 and 2035.”

(IATA, 2019)
CORSIA Post-COVID Demand

Emissions Trajectories under Five COVID Scenarios:

V, V, U, L, V
Scenario 1: The “V”. Emissions rebound fully by 2021 and return to a BAU trajectory
Scenario 2: “V”. Emissions rebound to 2013 levels in 2021 with subsequent year on year growth

Scenario 2: Slightly Attenuated Rebound, Dampened Long Term Growth
Scenario 3: The “U”. Emissions rebound slowly to 2019 levels in 2024 with subsequent year on year growth.
Scenario 4: The “L”. Emissions fall and do not rebound, with minimal growth post-2021

Scenario 4: Emissions Fall, then Level Off

Aviation Emissions (Million tCO₂)

- High Impact
- Severe Impact
- Extreme Impact
- BAU
Scenario 5: The “✓”. Emissions overshoot pre-COVID
BAU predictions

Scenario 5: Overshoot
S1: The “V”. Full, Fast Emissions Rebound

S2: The “V”. Slightly Attenuated Rebound, Dampened Long Term Growth

S3: The “U”. Slow Recovery, Dampened Long Term Growth

S4: The “L”. Emissions Fall, then Level Off

S5: The “v”. Emissions overshoot pre-COVID BAU predictions
CORSIA’s Pilot Phase Flexibility Mechanism (PPFM)

ICAQ Resolution paragraph 11(e):

“where the % sector and % Individual will be applied as follows:

i) from 2021 through 2023, 100% sectoral and 0% individual, though each participating State may choose during this Pilot Phase whether to apply this to:

A an aeroplane operator’s emissions covered by CORSIA in a given year, as stated above, or

B an aeroplane operator’s emissions covered by CORSIA in 2020;”
CORSIA Emissions Unit Demand: Five Post-COVID Scenarios Pilot Phase (2021-2023)
Scenario 1

The “V”: Full, Fast Emissions Rebound
The “V”: Full recovery by 2021, Baseline 2019-2020: PPFM modulates the increase in offset obligation

Scenario 1: Full, Fast, Emissions Rebound

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 1

<table>
<thead>
<tr>
<th>Year</th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>158</td>
<td>335</td>
<td>437</td>
</tr>
<tr>
<td>2021</td>
<td>125</td>
<td>157</td>
<td>123</td>
</tr>
</tbody>
</table>
The “V”: Full recovery by 2021, Baseline 2019-2020: PPFM modulates the increase in offset obligation

Scenario 1: Full, Fast Emissions Rebound + Flexibility Mechanism

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 1

<table>
<thead>
<tr>
<th>2019-2020 Baseline</th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Flexibility</td>
<td>158</td>
<td>335</td>
<td>437</td>
</tr>
</tbody>
</table>
| Applying the Given Year 2020 Flexibility Mechanism in the Pilot Phase (2021-2023) allows airlines to reduce their obligation from the baseline amount (dotted lines) to the shaded area.
The “V”: Full recovery by 2021, Baseline 2019 only: Offset demand would increase 15%

Emissions Gap if Baseline Change to 2019
Scenario 1: Full, Fast Emissions Rebound

Anticipated CORSIA Pilot Phase Demand
Pre-COVID19 = 78 MtCO₂

Anticipated CORSIA Pilot Phase Demand in Scenario 1 = 92 MtCO₂
In “V” Scenario 1, with original 2019-2020 Baseline, PPFM modulates offset obligation

Scenario 1: Full, Fast Emissions Rebound
2019-2020 Baseline Obligation vs. 2019 Changed Baseline Obligation

- Pre-COVID Anticipated Demand
- Pilot Phase Demand Under 2019-2020 Baseline
- Pilot Phase Demand Under 2019-2020 Baseline + PPFM
- Pilot Phase Demand Under 2019 Baseline

Base Case: 78
High Impact: 158
Severe Impact: 335
Extreme Impact: 437

Million tCO2
Scenario 2

The “V”: Slightly Attenuated Rebound, Dampened Long Term Growth

Scenario 2: Slightly Attenuated Rebound, Dampened Long Term Growth

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 2

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-2020 Baseline</td>
<td>19</td>
<td>195</td>
<td>298</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>17</td>
<td>105</td>
<td>96</td>
</tr>
</tbody>
</table>

- Pre-COVID Anticipated Demand
- Additional Offset Obligation, High Impact Scenario
- Additional Offset Obligation, Severe Impact Scenario
- Additional Offset Obligation, Extreme Impact Scenario
- High Impact Emissions
- Severe Impact Emissions
- Extreme Impact Emissions
- BAU
Scenario 2: “\( V \)”, Baseline 2019-2020: PPFM reduces offset obligation to nearly pre-COVID levels

Scenario 2: Slightly Attenuated Rebound, Dampened Long Term Growth + Flexibility Mechanism

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 2

<table>
<thead>
<tr>
<th></th>
<th>High</th>
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<th>Extreme</th>
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<tbody>
<tr>
<td>2019-2020 Baseline</td>
<td>19</td>
<td>195</td>
<td>298</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>17</td>
<td>105</td>
<td>96</td>
</tr>
</tbody>
</table>

- **Pre-COVID Anticipated Demand**
- **Additional Offset Obligation, High Impact Scenario**
- **Additional Offset Obligation, Severe Impact Scenario**
- **Additional Offset Obligation, Extreme Impact Scenario**
- **High Impact Emissions**
- **Severe Impact Emissions**
- **Extreme Impact Emissions**
- **BAU**

**Pilot Phase**
The “V”: Dampened emissions, Baseline 2019 only: Offset obligation would vanish until 2024

Emissions Gap if Changed to 2019 Baseline
Scenario 2: Slightly Attenuated Rebound, Dampened Long Term Growth

Anticipated CORSIA Pilot Phase Demand Pre-COVID19 = 78 MtCO₂

Anticipated CORSIA Pilot Phase Demand in Scenario 2 = 0 MtCO₂
The “V”: PPFM reduces offset obligation to pre-COVID levels; 2019-only baseline eliminates offset obligation.

**Scenario 2: Slightly Attenuated Rebound, Dampened Long Term Growth**

2019-2020 Baseline Obligation vs. 2019 Changed Baseline Obligation

- **Pre-COVID Anticipated Demand**
- **Pilot Phase Demand Under 2019-2020 Baseline**
- **Pilot Phase Demand Under 2019-2020 Baseline + PPFM**
- **Pilot Phase Demand Under 2019 Baseline**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Base Case</th>
<th>High Impact</th>
<th>Severe Impact</th>
<th>Extreme Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Million tCO₂</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-COVID Anticipated Demand</td>
<td>78</td>
<td>17</td>
<td>0</td>
<td>96</td>
</tr>
<tr>
<td>Pilot Phase Demand Under 2019-2020 Baseline</td>
<td>95</td>
<td>0</td>
<td>105</td>
<td>374</td>
</tr>
<tr>
<td>Pilot Phase Demand Under 2019-2020 Baseline + PPFM</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Pilot Phase Demand Under 2019 Baseline</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>
Scenario 3

The “U”: Slow Recovery, Dampened Long Term Growth
Scenario 3: Slow Recovery, Dampened Long Term Growth

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 3

<table>
<thead>
<tr>
<th>Year</th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-2020 Baseline</td>
<td>10</td>
<td>22</td>
<td>29</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>9</td>
<td>14</td>
<td>12</td>
</tr>
</tbody>
</table>

The “U”: Baseline 2019-2020: Pilot Phase Offset Obligation Greatly Reduced

- Pre-COVID Anticipated Demand
- Additional Offset Obligation, High Impact Scenario
- Additional Offset Obligation, Severe Impact Scenario
- Additional Offset Obligation, Extreme Impact Scenario
- High Impact Emissions
- Severe Impact Emissions
- Extreme Impact Emissions
- BAU
The “U”: Baseline 2019-2020: Pilot Phase Offset Obligation Greatly Reduced

Scenario 3: Slow Recovery, Dampened Long Term Growth + Flexibility Mechanism

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 3

<table>
<thead>
<tr>
<th>Year</th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-2020 Baseline</td>
<td>10</td>
<td>22</td>
<td>29</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>9</td>
<td>14</td>
<td>12</td>
</tr>
</tbody>
</table>

The “U”: Baseline 2019-2020: Pilot Phase Offset Obligation Greatly Reduced
The “U”: Baseline 2019-only: Offset Obligation would vanish until 2025

Emissions Gap if Changed to 2019 Baseline
Scenario 3: Slow Recovery, Dampened Long Term Growth

Anticipated CORSIA Pilot Phase Demand
Pre-COVID19 = 78 MtCO₂

Anticipated CORSIA Pilot Phase Demand in Scenario 3 = 0 MtCO₂
The “U”: Baseline 2019-only: Pilot Phase offset obligation would vanish

Scenario 3: Slow Recovery, Dampened Long Term Growth
2019-2020 Baseline Obligation vs. 2019 Changed Baseline Obligation

- Pre-COVID Anticipated Demand
- Pilot Phase Demand Under 2019-2020 Baseline
- Pilot Phase Demand Under 2019-2020 Baseline + PPFM
- Pilot Phase Demand Under 2019 Baseline

For each impact scenario:
- Base Case: 78
- High Impact: 10, 9
- Severe Impact: 22, 14
- Extreme Impact: 29, 12
If baseline were changed to 2019, offset obligation in the “U” Scenario would be delayed beyond the Pilot Phase.

Scenario 3: (“U”)

- **Level of COVID Impact**
  - High Impact: 4 years
  - Severe Impact: 5 years
  - Extreme Impact: 5 years

- **Years with No Offset Obligation**
  - High Impact: 2025
  - Severe Impact: 2026
  - Extreme Impact: 2026

- **First Full Year of Offset Obligation**
Scenario 4

The “L”: Emissions Fall, then Level Off
Scenario 4: Emissions Fall, then Level Off

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 4

<table>
<thead>
<tr>
<th>2019-2020 Baseline</th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>With Flexibility</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

- Pre-COVID Anticipated Demand
- Additional Offset Obligation, High Impact Scenario
- Additional Offset Obligation, Severe Impact Scenario
- Additional Offset Obligation, Extreme Impact Scenario
- High Impact Emissions
- Severe Impact Emissions
- Extreme Impact Emissions
- BAU
The L: Emissions Level Off. Under Baseline 2019-2020, no offset obligations

Scenario 4: Emissions Fall, then Level Off + Flexibility Mechanism

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 4

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-2020 Baseline</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Graph showing emissions fall and then level off with the years 2017 to 2027 along the x-axis and emissions in million tCO2 along the y-axis. The graph includes the following scenarios:

- Pre-COVID Anticipated Demand
- Additional Offset Obligation, High Impact Scenario
- Additional Offset Obligation, Severe Impact Scenario
- Additional Offset Obligation, Extreme Impact Scenario
- High Impact Emissions
- Severe Impact Emissions
- Extreme Impact Emissions
- BAU

The graph highlights that under baseline 2019-2020, there are no offset obligations.
The “L”: Emissions Level Off. Baseline 2019-only: Offset obligations would vanish beyond the Pilot Phase

Emissions Gap if Baseline Changed to 2019
Scenario 4: Emissions Fall, then Level Off

Anticipated CORSIA Pilot Phase Demand Pre-COVID19
= 78 MtCO₂

Anticipated CORSIA Pilot Phase Demand in Scenario 4
= 0 MtCO₂

Projected Offset Obligation Pre-COVID
Additional Obligation if Baseline Changed to 2019
High Impact Emissions
Severe Impact Emissions
Extreme Impact Emissions
Projected Offset Obligation Pre-COVID
2019 Baseline
The L: Regardless of baseline, there will be no offset obligation in the Pilot Phase

Scenario 4: Slow Recovery, Dampened Long Term Growth
2019-2020 Baseline Obligation vs. 2019 Changed Baseline Obligation

- Pre-COVID Anticipated Demand
- Pilot Phase Demand Under 2019-2020 Baseline
- Pilot Phase Demand Under 2019-2020 Baseline + PPFM
- Pilot Phase Demand Under 2019 Baseline
Scenario 5

The Overshoot “✓”: Emissions Exceed Pre-COVID Projections
The “V”: When emissions overshoot pre-COVID projections, all scenarios see increased obligation

Scenario 5: Emissions Exceed Pre-COVID Projections

Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 5

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-2020 Baseline</td>
<td>205</td>
<td>382</td>
<td>485</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>156</td>
<td>172</td>
<td>131</td>
</tr>
</tbody>
</table>

The graph shows the anticipated CORSIA Pilot Phase demand from 2021 to 2023, with scenarios categorized by severity of emissions overshoot. The chart includes lines for baseline and flexible emissions, with specific demand values for high, severe, and extreme scenarios.
Anticipated CORSIA Pilot Phase (2021-2023) Demand in Scenario 5

The “✓”: When emissions overshoot pre-COVID projections, all scenarios see increased obligation

Scenario 5: Emissions Exceed Pre-COVID Projections + Flexibility Mechanism

2019-2020 Baseline

<table>
<thead>
<tr>
<th>Year</th>
<th>High</th>
<th>Severe</th>
<th>Extreme</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline</td>
<td>205</td>
<td>382</td>
<td>485</td>
</tr>
<tr>
<td>With Flexibility</td>
<td>156</td>
<td>172</td>
<td>131</td>
</tr>
</tbody>
</table>

- Pre-COVID Anticipated Demand
- Additional Offset Obligation, High Impact Scenario
- Additional Offset Obligation, Severe Impact Scenario
- Additional Offset Obligation, Extreme Impact Scenario
- High Impact Emissions
- Severe Impact Emissions
- Extreme Impact Emissions
- BAU
The “✓”: When emissions overshoot pre-COVID projections, a 2019 baseline would result in increased obligation.

Anticipated CORSIA Pilot Phase Demand
Pre-COVID19 = 78 MtCO₂

Anticipated CORSIA Pilot Phase Demand in Scenario 5 = 139 MtCO₂
The “✓”: PPFM would mitigate offset obligation commensurate with 2019-only baseline

Scenario 5: Emissions Overshoot
2019-2020 PPFM Obligation vs. 2019 Changed Baseline Obligation

- Pre-COVID Anticipated Demand
- Pilot Phase Demand Under 2019-2020 Baseline
- Pilot Phase Demand Under 2019-2020 Baseline + PPFM
- Pilot Phase Demand Under 2019 Baseline

Base Case
High Impact
Severe Impact
Extreme Impact
## Pilot Phase Post-COVID Scenarios (Pre-COVID BAU Demand=78)*

<table>
<thead>
<tr>
<th>Scenario</th>
<th>BAU*</th>
<th>2019-2020 Baseline*</th>
<th>2019 Baseline*</th>
</tr>
</thead>
<tbody>
<tr>
<td>S1+Flexibility</td>
<td>-</td>
<td>High: 125, Severe: 157, Extreme: 123</td>
<td>High: 72, Severe: 44, Extreme: 26</td>
</tr>
<tr>
<td>S2 (“V”)</td>
<td>-</td>
<td>High: 19, Severe: 195, Extreme: 298</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
</tr>
<tr>
<td>S2+Flexibility</td>
<td>-</td>
<td>High: 17, Severe: 105, Extreme: 96</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
</tr>
<tr>
<td>S3 (“U”)</td>
<td>-</td>
<td>High: 10, Severe: 22, Extreme: 29</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
</tr>
<tr>
<td>S3+Flexibility</td>
<td>-</td>
<td>High: 9, Severe: 14, Extreme: 12</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
</tr>
<tr>
<td>S4 (“L”)</td>
<td>-</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
</tr>
<tr>
<td>S4+Flexibility</td>
<td>-</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
<td>High: 0, Severe: 0, Extreme: 0</td>
</tr>
</tbody>
</table>

* All measurements in MMTCO$_2$
# Pilot Phase Post-COVID Scenarios Percent Change Relative to Pre-COVID BAU Demand of 78 MMT

<table>
<thead>
<tr>
<th>Scenario</th>
<th>BAU*</th>
<th>2019-2020 Baseline*</th>
<th>2019 Baseline*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>High</td>
<td>Severe</td>
</tr>
<tr>
<td><strong>S1 (&quot;V&quot;)</strong></td>
<td>78</td>
<td>+103%</td>
<td>+330%</td>
</tr>
<tr>
<td>S1+Flexibility</td>
<td>-</td>
<td>+61%</td>
<td>+102%</td>
</tr>
<tr>
<td><strong>S2 (&quot;V&quot;)</strong></td>
<td>-</td>
<td>-75%</td>
<td>+150%</td>
</tr>
<tr>
<td>S2+Flexibility</td>
<td>-</td>
<td>-78%</td>
<td>+35%</td>
</tr>
<tr>
<td><strong>S3 (&quot;U&quot;)</strong></td>
<td>-</td>
<td>-87%</td>
<td>-72%</td>
</tr>
<tr>
<td>S3+Flexibility</td>
<td>-</td>
<td>-88%</td>
<td>-82%</td>
</tr>
<tr>
<td><strong>S4 (&quot;L&quot;)</strong></td>
<td>-</td>
<td>-100%</td>
<td>-100%</td>
</tr>
<tr>
<td>S4+Flexibility</td>
<td>-</td>
<td>-100%</td>
<td>-100%</td>
</tr>
<tr>
<td><strong>S5 (&quot;V&quot;)</strong></td>
<td>-</td>
<td>+163%</td>
<td>+391%</td>
</tr>
<tr>
<td>S5+Flexibility</td>
<td>-</td>
<td>+100%</td>
<td>+121%</td>
</tr>
</tbody>
</table>

* All measurements in MMTCO₂
# Full Program Demand Summary

<table>
<thead>
<tr>
<th>Scenario</th>
<th>BAU*</th>
<th>2019-2020 Baseline*</th>
<th>2019 Baseline*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>High</td>
<td>Severe</td>
</tr>
<tr>
<td>S1 (“V”)</td>
<td>2360</td>
<td>2893</td>
<td>4073</td>
</tr>
<tr>
<td>% Change</td>
<td>-</td>
<td>+23%</td>
<td>+73%</td>
</tr>
<tr>
<td>S2 (“V”)</td>
<td>2360</td>
<td>1464</td>
<td>2642</td>
</tr>
<tr>
<td>% Change</td>
<td>-</td>
<td>-38%</td>
<td>+12%</td>
</tr>
<tr>
<td>S3 (“U”)</td>
<td>2360</td>
<td>1450</td>
<td>2378</td>
</tr>
<tr>
<td>% Change</td>
<td>-</td>
<td>-39%</td>
<td>+1%</td>
</tr>
<tr>
<td>S4 (“L”)</td>
<td>2360</td>
<td>454</td>
<td>0</td>
</tr>
<tr>
<td>% Change</td>
<td>-</td>
<td>-81%</td>
<td>-100%</td>
</tr>
<tr>
<td>S5 (“V”)</td>
<td>2360</td>
<td>3772</td>
<td>4952</td>
</tr>
<tr>
<td>% Change</td>
<td>-</td>
<td>+60%</td>
<td>+110%</td>
</tr>
</tbody>
</table>

* All measurements in MMTCO$_2$
Q: What about Supply in the Pilot Phase?
A: With 2019-2020 Baseline, Supply is sufficient for Pilot Phase under all Scenarios

<table>
<thead>
<tr>
<th>CORSIA Eligible Supply</th>
<th>386-569 MMT*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand (Extreme Scenarios)</td>
<td>474-485 MMT</td>
</tr>
<tr>
<td>Demand (Extreme Scenarios with Flexibility Mechanism)</td>
<td>156-172 MMT</td>
</tr>
</tbody>
</table>

- Supply could increase further as ICAO TAB and Council consider second round of offset program applications for CORSIA Pilot Phase

*Findings from Ecosystem Marketplace’s March 2020 Analysis*
# Pilot Phase Post-COVID Scenarios

## Supply* Relative to Demand

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Supply*</th>
<th>Supply Exceeds Demand</th>
<th>Demand: 2019-2020 Baseline*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td>High</td>
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<td><strong>S1 (“V”)</strong></td>
<td>386 - 569</td>
<td>yes for most</td>
<td>158</td>
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<td>S1+Flexibility</td>
<td>386 - 569</td>
<td>yes</td>
<td>125</td>
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<tr>
<td><strong>S2 (“V”)</strong></td>
<td>386 - 569</td>
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<td>19</td>
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<td>S2+Flexibility</td>
<td>386 - 569</td>
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<td>17</td>
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<td><strong>S3 (“U”)</strong></td>
<td>386 - 569</td>
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<td>10</td>
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<td>386 - 569</td>
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<td><strong>S4 (“L”)</strong></td>
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<td><strong>S5 (“J”)</strong></td>
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<td>S5+Flexibility</td>
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<td>yes</td>
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*Supply Scenarios from Ecosystem Marketplace March 2020 Analysis
“Airline executives have warned of a slow recovery even after the virus is contained and have said demand may not recover to 2019 levels for years.”

“U.S. Airline Shares Tumble as Buffett Sell-Off Adds to Worries,” 4 May 2020

“…the world has changed for the airlines…”

Warren Buffet, 2 May 2020
CORSIA Baseline Conclusions

Key Takeaways:

1. Changing the baseline to 2019 causes offset obligations in the Pilot Phase to vanish in most scenarios.

2. Council has ensured CORSIA ample Pilot Phase supply; Flexibility Mechanism greatly reduces the Pilot Phase offset obligation.

3. Changes to post-Pilot Phase offset obligation largely depend on timing and extent of aviation’s rebound from COVID.

Bottom Line:

A major change to CORSIA’s structure should not be taken in a hurry.

- The question should be considered by ICAO’s 190+ member Assembly at their next regular meeting in 2022, by which time there will be more information about aviation’s rebound.
Thank you!

Annie Petsonk
International Counsel
apetsonk@edf.org