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ICAO STOCKTAKING SEMINAR
TOWARD THE 2050 VISION FOR
SUSTAINABLE AVIATION FUELS



Aviation Climate Policy & Lower Carbon Aviation Fuel

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Outline

- CORSIA Background & Objectives
- CORSIA & Eligible Fuels
- Sustainability Criteria
- GHG Reduction Potential
- Next Steps



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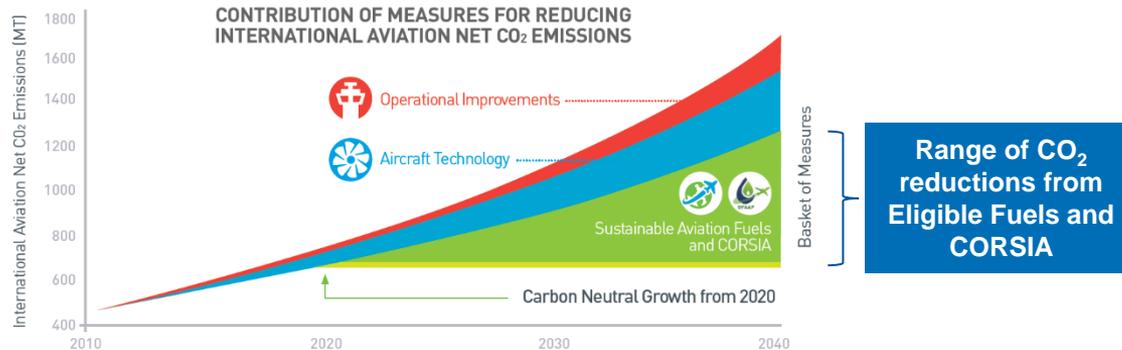
CORSIA





CORSIA Background & Objectives

- Fuel burn from international aviation is projected to grow significantly.
- Achievement of carbon neutral growth at 2020 emissions levels out to 2050.



- In June 2018 ICAO's governing 36-State Council has adopted standards and rules for the CORSIA.



CORSIA & Eligible Fuels

- The use of sustainable aviation fuels or lower carbon aviation fuels may reduce the airlines offsetting requirements under CORSIA.
- Annex 16 Vol IV definitions:
 - **CORSIA sustainable aviation fuel.** *A renewable or waste-derived aviation fuel that meets the CORSIA Sustainability Criteria under this Volume.*
 - **CORSIA lower carbon aviation fuel.** *A fossil-based aviation fuel that meets the CORSIA Sustainability Criteria under this Volume.*
 - **CORSIA eligible fuel.** *A CORSIA sustainable aviation fuel or a CORSIA lower carbon aviation fuel, which an operator may use to reduce their offsetting requirements.*



Current Framework & Sustainability Criteria

- Calculation of GHG emissions under CORSIA:

$$\text{CO}_2 = 3.16 \times [M + ME \cdot (LE/LC)]$$

Where:

M = Mass of conventional fuel used (in tonnes);

ME = Mass of CORSIA eligible fuel claimed (in tonnes);

LE = Life cycle emissions value for a CORSIA eligible fuel (in gCO₂e/MJ);

LC = Baseline life cycle emissions value for jet fuel, equal to 89 gCO₂e/MJ.

- Sustainability criteria include minimum 10% GHG emissions reduction.



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Strategies to Reduce GHG Impacts

- Resource management
- Resource prioritization
- Innovative technologies





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Quiz

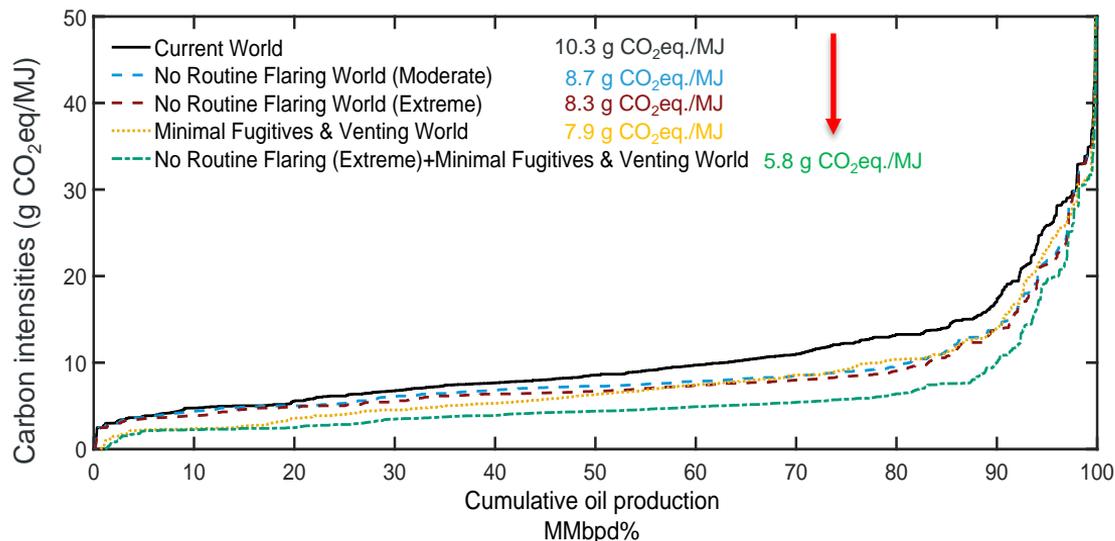
How much emissions reductions from global crude oil production can be achieved by the management of flaring and methane losses?

- A) 23%
- B) 33%
- C) 43%
- D) 53%



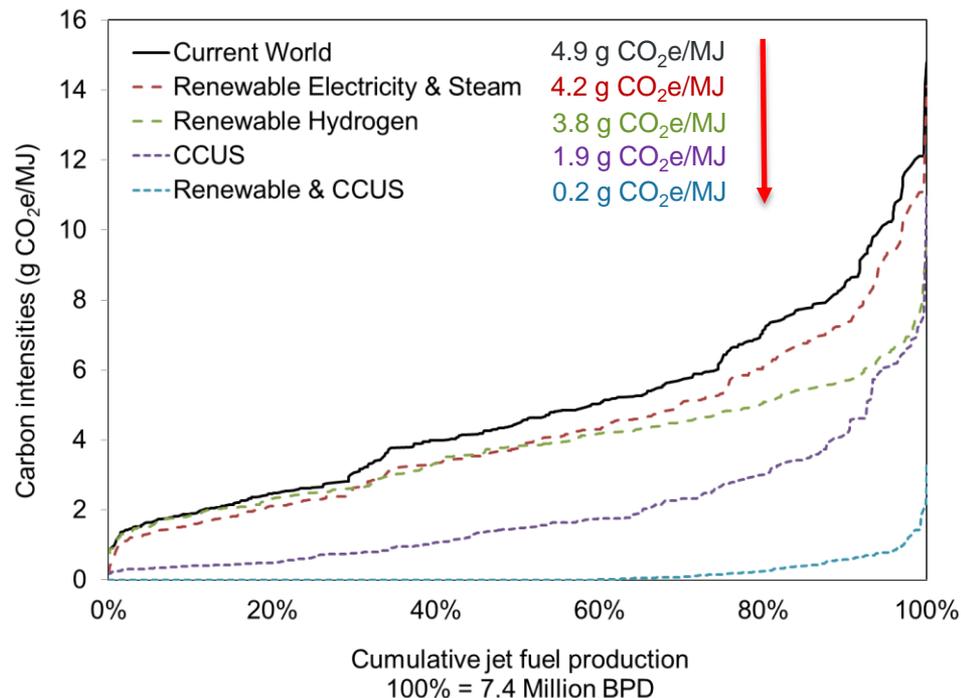
Resource Management & Prioritization

- Gas management can provide substantial mitigation benefits.
- Stringent flaring reduction (limited to 20 scf/bbl) and minimal fugitive and venting emissions results in ~43% of annual CI reduction.



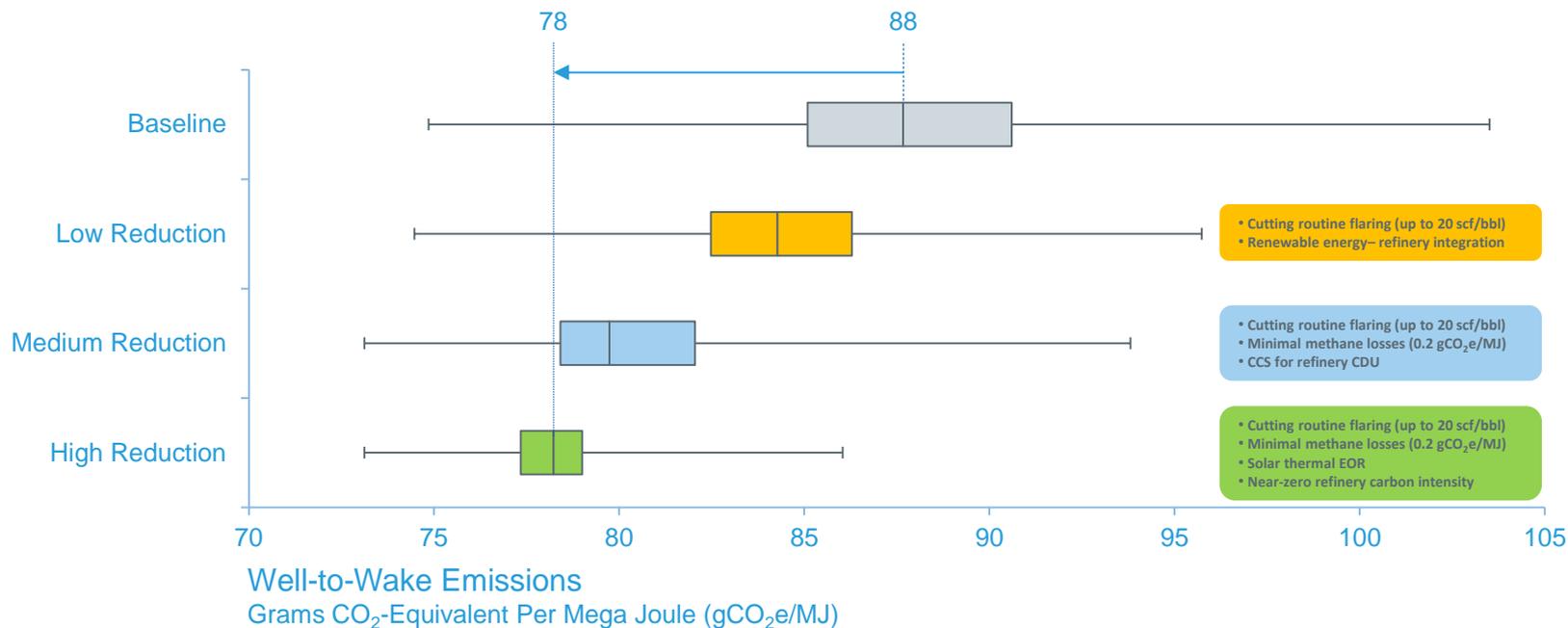


Refinery GHG Reduction Potential



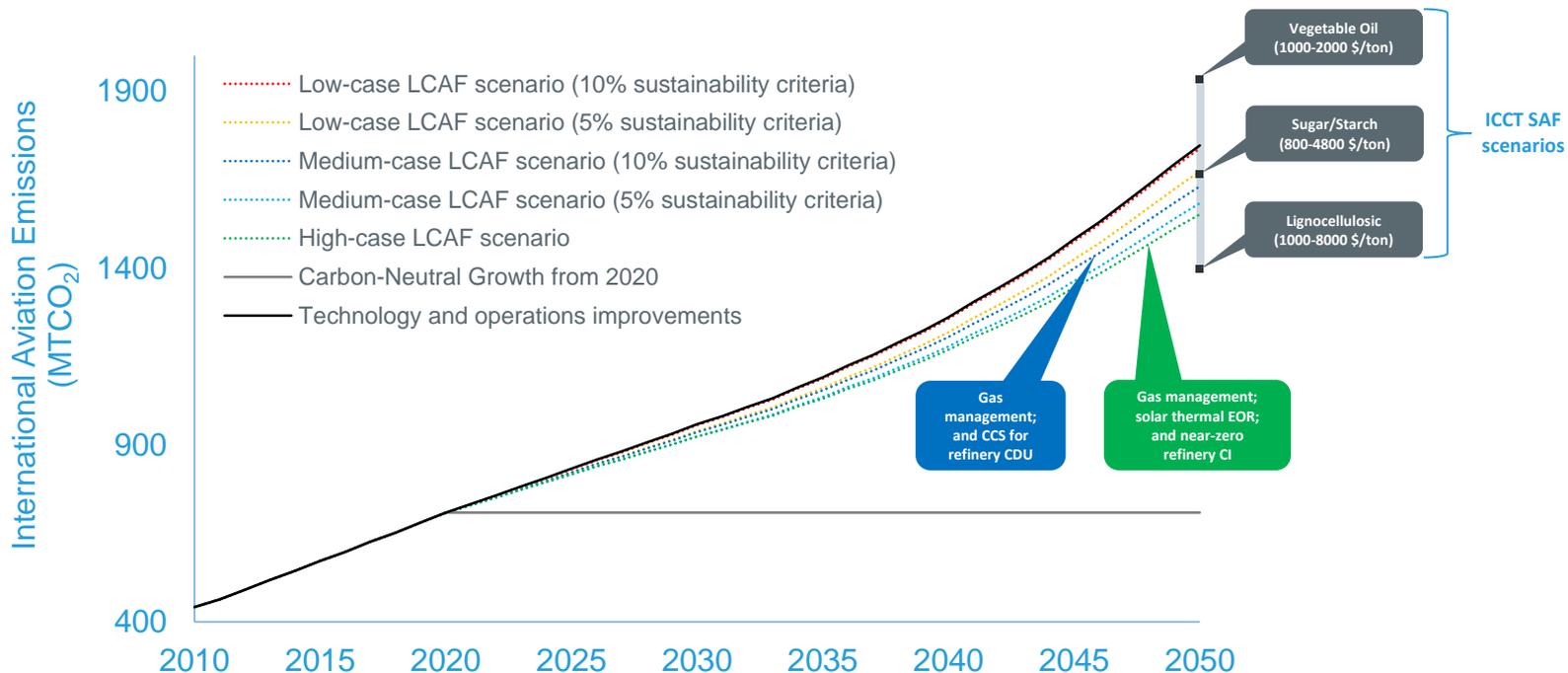


Aviation Fuel GHG Emissions Reduction





Potential Contribution of LCAF to GHG Emissions Reductions





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Conclusions

- The implementation of LCAF recognizes the heterogeneity of petroleum-based aviation fuels and rewards improved production practices with clear incentives for the lowest carbon intensity producers.
- LCAF has the potential to further reduce aviation fuel GHG emissions.



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Next Steps

- Increase participation of oil and gas experts in the Fuels Technical Group (FTG) of the ICAO Committee on Aviation Environmental Protection (CAEP).
- Develop detailed LCA methodologies for the consideration of lower carbon aviation fuel (LCAF) under CORSIA.
- Build a high resolution petroleum LCA tool for the measurement of conventional jet fuel life cycle emissions.
- Appropriate policies should be adopted by relevant international organizations and interested governments to incentivize the deployment of LCAF.



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THANK YOU



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Backup Slides





Phased implementation

- The CORSIA starts with a pilot phase in 2021.
- Operators with annual CO₂ emissions above 10,000 MT will have to measure and report their emissions from 1st January 2019 so a baseline can be established.

76 States (76% of international aviation activity) to participate in the pilot phase (As of 20 November 2018)



- Participation of States in the pilot phase (2021 to 2023) and first phase (2024 to 2026) is voluntary.
- For the second phase from 2027, all States with an individual share of international aviation activity in year 2018 above 0.5% of total activity or whose cumulative share reaches 90% of total activity, are included. Least Developed Countries, Small Island Developing States and Landlocked Developing Countries are exempt unless they volunteer to participate.

- The participation of states in the CORSIA offsetting is voluntary between 2021-2026.