

FAA Update on Sustainable Aviation Fuels (SAF) and ICAO CORSIA

To: ASCENT Advisory Board Meeting

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ICAO “Carbon Offsetting & Reduction Scheme for International Aviation” (CORSIA)

- ICAO (International Civil Aviation Organization) sets standards and recommended practices for civil aircraft to enable our global aviation system
- CORSIA is a Global Carbon Offsetting Scheme
 - Not a carbon tax or emissions trading scheme
 - Offsetting to help international aviation meet Carbon Neutral Growth goal
 - Offsets required from 2021-2035
 - Applies to Aircraft Operators, International Operations Only
 - Exemptions for aircraft $\leq 5,700$ kg, operators with $\leq 10,000$ metric tons CO₂, and humanitarian, medical, firefighting flights
 - Country-by-country implementation, with reporting to and determinations by ICAO
- CORSIA Eligible Fuels can be used by an airline to reduce their offsetting requirements



ICAO Organizational Structure

- General Assembly of 192 ICAO Member States
 - Meets every three years (this cycle sets the pace of ICAO work); next meeting is September/October 2019 (40th Assembly)
 - Assembly approves/endorsees work conducted in the previous three years and sets forth commitments and future work by ICAO
 - Resolution – method by which the Assembly makes policy and commitments
- ICAO Council
 - Presently 36 member states with permanent representatives
 - ICAO Council conducts day-to-day oversight of ICAO work program; meets for two week voting sessions four times per year
 - Council President Dr. Bernard Aliu from Nigeria
- ICAO five Strategic Objectives:
 1. Safety
 2. Air Navigation Capacity and Efficiency
 3. Security & Facilitation
 4. Economic Development of Air Transport
 5. **Environmental Protection**



CAEP

- **CAEP – Committee on Aviation Environmental Protection**
 - Standing Committee of the Council to conduct environmental technical work
 - Composed of 25 Members from all regions of the world and 17 Observers
 - Terms of Reference: Assessments and proposals take into account - technical feasibility, economic reasonableness and environmental benefit, interdependencies of measures, developments in other fields, and international and national programmes
- **CAEP Work Program – three primary sources 1) Assembly Resolution; 2) ICAO Council; 3) work identified within CAEP (usually proposed by members or Secretariat).**
 - Task-Driven – each CAEP working group pursues work according to tasks agreed by at the triennial CAEP meeting or by the CAEP Steering Group
 - CAEP/11 (2017-2019) culminated with CAEP/11 meeting in Feb. 2019
 - CAEP/12 now underway



CORSIA Eligible Fuels (CEF)

CEF provide an additional means to comply with CORSIA Offsetting Requirements

- Emissions Units
- Claiming Emissions Reductions from CORSIA Eligible Fuels (CEF)

Two types of CEF

- “CORSIA Sustainable Aviation Fuel”: renewable or waste-derived fuel
- “CORSIA Lower Carbon Aviation Fuel”: fossil-based fuel

$$Emissions\ Reduction = 3.16 * \left[\sum Neat\ Fuel\ Mass * \left(1 - \frac{Life\ Cycle\ Emissions}{89\ g\ CO2/MJ} \right) \right]$$

To be eligible for CORSIA, a fuel needs to meet the CORSIA Sustainability Criteria as certified by a CORSIA Approved Sustainability Certification Scheme (SCS)

- CEF shall achieve net greenhouse gas emissions reductions of at least 10% compared to the baseline life cycle emissions values for aviation fuel on a life cycle basis.
- CEF shall not be made from biomass obtained from land converted after 1 January 2008 that was primary forest, wetlands, or peat lands and/or contributes to degradation of the carbon stock in these land types.
- Work is ongoing on additional criteria within ICAO CAEP.



CAEP/11 Alternative Fuels Task Force accomplishments



- **Greenhouse gas life cycle analysis (LCA) methodology (MIT, ANL)**
 - Default Core LCA values calculated (MIT)
- **Induced land use change (ILUC) methodology (Purdue)**
 - Default ILUC values calculated (Purdue)
- **Sustainability criteria (GHG, carbon in land) (Volpe)**
- **Policy analysis on SAF deployment (MIT, Purdue)**
- **Projection of future fuel production in support 2050 trends assessment (MIT)**



CAEP/12 Fuels Task Group (FTG) Technical Work Program

- **Core LCA methodology refinement**
 - Default Core LCA values calculation
- **ILUC methodology refinement**
 - Default ILUC values calculation
- **Emissions credits methodology refinement**
- **Sustainability criteria - additional/strengthened**
- **Refinement on Sustainability certification scheme (SCS) requirements**
- **Technology & fuel production evaluation**
- **Rules for emissions credits**
- **Analysis on policies & approaches for deployment**





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**Federal Aviation
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Historical Overview

2006: EU proposed Emissions Trading Scheme (ETS) to begin in 2012

2007: ICAO 36th Assembly agreed to explore other options

2010: 37th Assembly agreed on CNG2020 goal

2012: Thune-McCaskill Bill – Directs FAA to

“...conduct international negotiations to pursue a worldwide approach to address aircraft emissions, including the environmental impact of aircraft emissions...”

2013: 38th Assembly agreed to the development of a GMBM (Global Market-Based Measure)

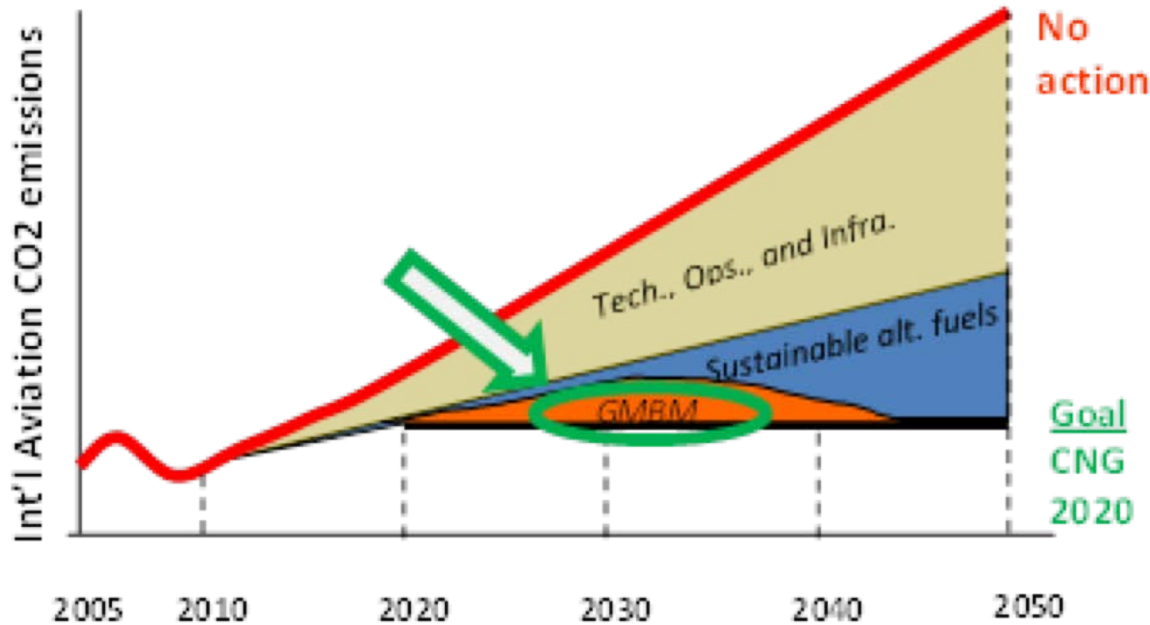
2016: 39th Assembly agreed to CORSIA framework

2018: CORSIA Agreed by ICAO Council

Now: Working out the technical details



CORSIA & the Basket of Measures



CORSIA is a complement to the other elements of ICAO's "basket of measures" to reduce the CO₂ emissions from international aviation.

- The other elements include:
- Aircraft Technologies
 - Operational and Infrastructure Improvements
 - Sustainable Alternative Fuels

