International Civil Aviation Organization

Thirty-Fourth Meeting of the Asia/Pacific Air Navigation Planning and Implementation Regional Group (APANPIRG/34)

Hong Kong, China, 11 to 13 December 2023

Agenda Item 2: Global and Inter Regional Activities

STATE ACTION PLAN TO MONITOR THE PROGRESS OF A LONG-TERM ASPIRATIONAL GOAL (LTAG) FOR INTERNATIONAL CIVIL AVIATION CO_2 EMISSIONS REDUCTIONS

(Presented by the Secretariat)

SUMMARY

This paper reiterates the important role of State Action Plans on CO2 Emissions Reduction Activities, encouraging all States to submit and update action plans to reduce CO_2 emissions from international aviation, setting out policies, actions, and roadmaps, including long-term projections, taking into account in-sector measures (e.g. technology, operations, and fuels) to achieve the collective long-term global aspirational goal for international aviation (LTAG) of net-zero carbon emissions by 2050, as encouraged by the ICAO Assembly Resolution A41-21, and the ICAO Global Framework on SAF, LCAF and other Aviation Cleaner Energies recently adopted by the CAAF/3.

Strategic Objectives:

E***: Environmental Protection*** *— Minimize the adverse environment effects of civil aviation activities.*

1. INTRODUCTION

1.1 At the 41st Session of the ICAO Assembly, ICAO Member States adopted a collective long-term global aspirational goal (LTAG) of net-zero carbon emissions by 2050. The net-zero carbon emissions LTAG is a significant milestone for the international aviation sector. It is consistent with and supports the temperature target of the Paris Agreement.

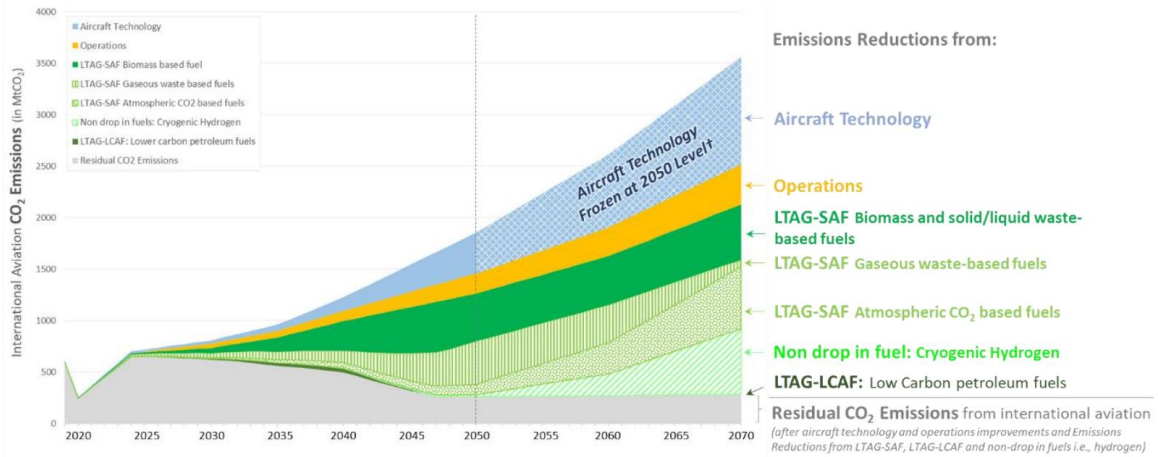
1.2 While recognizing that the LTAG is a collective global aspirational goal that does not attribute specific obligations or commitments in the form of emissions reduction goals to individual States, the Assembly urges each State to contribute to achieving the goal in a socially, economically, and environmentally sustainable manner, and in accordance with national circumstances.

2. CONTRIBUTION OF AVIATION IN-SECTOR CO2 REDUCTION MEASURES TO ACHIEVING THE LTAG

2.1 The decision on the LTAG was underpinned by a robust technical basis – this was done through a detailed LTAG report, published in March 2022 after more than two years of work, in which several integrated scenarios were developed to cover a range of readiness, attainability, and aspirations for aviation in-sector CO_2 emissions reduction measures.

2.2 The achievement of the LTAG depends on the combined effect of multiple CO2 emissions reduction measures, including the accelerated adoption of new and innovative innovative aircraft technologies (including new airframe and propulsion system), streamlined flight operations across all phases, and the increased production and deployment of Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other cleaner energy sources for aviation (including hydrogen and battery electric).

2.3 For the most ambitious scenario outlined in the LTAG report: LTAG Report (icao.int), the reductions in 2050 from the baseline would be 87% - broken down into 21% from technologies, 11% from operations, and the majority 55% from fuels.



Metrics	IS3
CO2 Emissions in 2050 after Reductions	**~200 $MtCO_2$** in 2050 (35% of 2019 CO_2 emissions)
Reductions in 2050 from the Baseline	**87% total** through: Technologies – 21%, Operations – 11%, Fuels – 55%

Figure 1 – LTAG Integrated Scenario 3

2.4 It is clear that Sustainable Aviation Fuels (SAF) will be a major component in achieving the objective of net zero emissions by 2050, but the contribution from technologies and operations measures will also make an important contribution to achieving the LTAG.

3. SCALE UP SUSTAINABLE AVIATION FUELS (SAF), LOWER CARBON AVIATION FUELS (LCAF) AND OTHER CLEANER ENERGY SOURCES FOR AVIATION – CAAF/3 OUTCOMES

3.1 Based on the LTAG report, the scaling up Sustainable Aviation Fuel (SAF), Lower Carbon Aviation Fuels (LCAF), and other cleaner energy sources are expected to bring about the largest contributions in enabling the sector to achieve its net-zero LTAG.

3.2 To support the further development and deployment of these fuels by States and relevant stakeholders, ICAO launched on 1 June 2022, the Assistance, Capacity Building and Training on SAF (ICAO ACT-SAF) program[1].

[1] ICAO Assistance, Capacity-building and Training for Sustainable Aviation Fuels (ICAO ACT-SAF)

3.3 As mandated by the 41st Session of the ICAO Assembly, the Third ICAO Conference on Aviation and Alternative Fuels (CAAF/3), which took place in Dubai from 20 to 24 November 2023, has reviewed the 2050 ICAO Vision for SAF, including LCAF and other cleaner energy sources for aviation, in order to define an ICAO global framework in line with the No Country Left Behind (NCLB) initiative and taking into account national circumstances and capabilities.

3.4 During the CAAF/3, the international aviation sector has taken a major step to accelerate its decarbonization. With the adoption of the ICAO Global Framework on SAF, LCAF and other Aviation Cleaner Energies, ICAO and its Member States strive to achieve a collective global aspirational Vision to reduce international aviation CO2 emissions by 5 per cent by 2030, through the use of SAF, LCAF and other aviation cleaner energies, compared to zero cleaner energy use[2].

4. ICAO STATE ACTION PLANS INITIATIVE

4.1 ICAO continues to work directly with Member States to support the development and updating of State Action Plans (SAP) to reduce CO2 emissions from international aviation, outlining their innovations in technologies and cleaner energies, policies, actions and roadmaps, including long-term projections and ensuring the use of the best available data, supported by ICAO guidance and tools. All current information on the development and update of the State Action Plans and related capacity-building activities will be continuously updated on the ICAO website[3].

4.2 By November 2023, 144 States representing over 98% of global international aviation traffic (in Revenue Tonne Kilometres (RTK)) have voluntarily submitted their State Action Plans to ICAO. This also includes the SAPs of 22 APAC Member States which have incorporated all measures from the ICAO basket of measures.

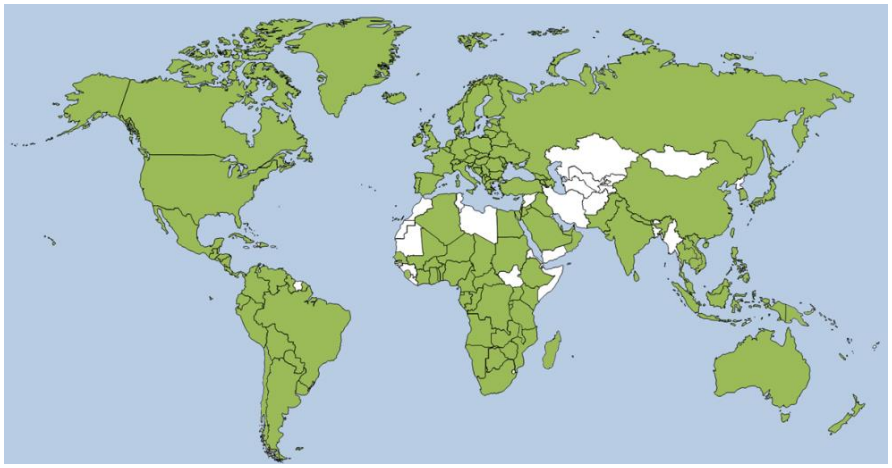


Figure 2 – 144 Member States submitted their Action Plans

[2] https://www.icao.int/Meetings/CAAF3/Pages/Documentation.aspx
[3] ICAO State Action Plans initiative webpage: State Action Plans and Assistance (icao.int)

Australia	Indonesia	Nepal	Republic Of Korea	Vanuatu
Cambodia	Japan	New Zealand	Singapore	Viet Nam
China	Kiribati	Pakistan	Solomon Islands	
Fiji	Lao PDR	Papua New Guinea	Sri Lanka	
India	Malaysia	Philippines	Thailand	

Table 1 – States in the APAC Region that submitted their SAP to ICAO

4.3 States in the APAC Region that have not yet submitted their SAP to ICAO are encouraged to prepare or update action plans and submit them to ICAO as soon as possible, preferably by the end of June 2024 and at least once every three years thereafter, in order to communicate their long-term climate change strategy for the international aviation sector. This will also allow for the clear definition of assistance needs in the SAP, which could create opportunities to access financial support for the implementation of innovative emissions reduction projects, including feasibility studies and pilot projects etc. The implementation of CO2 mitigation measures in the APAC region, based on the submitted SAP, is shown graphically in Figure 3.

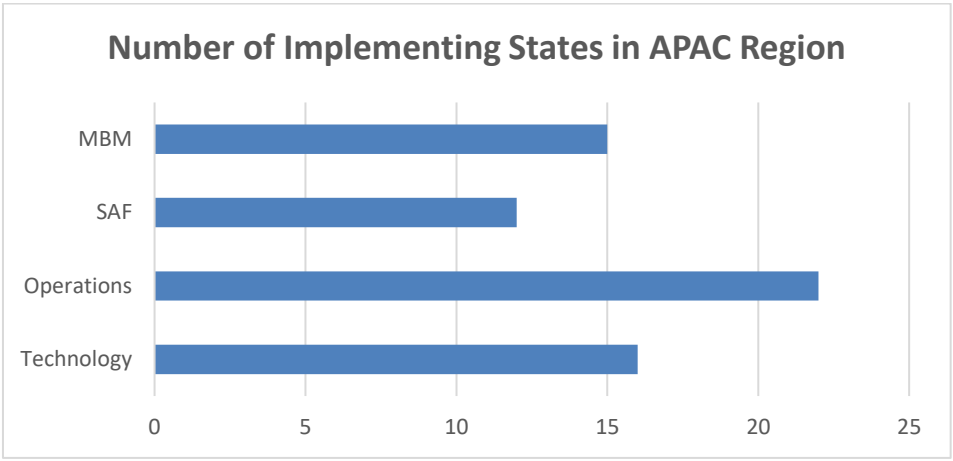


Figure 3 – Implementation of CO2 Mitigation Measures in the APAC Region (based on submitted SAP)

4.4 Based on the SAPs submitted by the APAC states, technology and operational improvement measures were selected by most States. Below are some examples of the technology and operational improvement measures implemented in the APAC region.

a. Technology improvements
- Fleet modernization – fuel-efficient aircraft
- Engine modernization – fuel-efficient engines
- Retrofitting and upgrade improvements on existing aircraft (e.g. installation of winglets/sharklets, etc.)
- Upgrading the avionics equipment – to meet current navigational requirements

b. Operational improvements
- Modernization of Air Traffic Management (ATM) infrastructure
- Performance Based Navigation (PBN) implementation
- User Preferred Routes (UPR) implementation
- Fuel-efficient departure and approach procedures (PBN Standard instrument arrival (STAR), Continuous Descent Operation (CDO), Continuous Climb Operation (CCO, etc.)
- Airport collaborative decision-making (A-CDM) implementation
- Best practices in operations (e.g. aircraft weight reduction, minimizing flaps (take-off and landing), minimizing the use of reversers, single-engine taxi, reduction on APU usage, etc.)

4.5 While State Action Plans remain an important tool for coordinating and communicating national plans of climate action for international aviation, they also serve as a key tool for ICAO to assess States' progress toward achieving their collective global aspirational goals.

4.6 Some States have recently developed more concrete long-term strategies and plans to reduce carbon emissions from international aviation through the use of new innovative technologies, operations and sustainable aviation fuels, since ICAO has been working on the feasibility of LTAG. Future updates and submissions of State Action Plans should focus on the latest innovative solutions available, while also enabling States to tap into potential funding sources, in order to facilitate States' voluntary contributions to reduce international aviation CO2 emissions.

4.7 The Secretariat is also progressing on the update of the ICAO document, *Guidance on the Development of States' Action Plan on CO_2 Emissions Reduction Activities* (Doc 9988)[4] to provide States with updated guidance and support to incorporate their initiatives into the development of their action plans, and contribute to the achievement of collective ICAO global aspirational goals. The updated guidance will better support States in identifying decarbonization pathways through innovations in a robust, quantitative, and forward-looking manner.

5. ACTION BY THE MEETING

5.1 The Meeting is invited to:

a) Note the contribution of aviation in-sector CO_2 reduction measures to achieving the LTAG, including the technology and operational improvements;

b) Note the outcomes of CAAF/3 on the adoption of the ICAO Global Framework for Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other Aviation Cleaner Energies;

c) Continue to include environmental aspects in the planning and implementation of regional air navigation systems; and

d) Coordinate with the State Action Plans (SAP) Focal Points to incorporate the technology and operational improvement measures into the SAP, taking into account the contribution of the technology and operational improvement measures to achieve the LTAG and the importance of the SAP for monitoring the progress of the LTAG.

— END —

[4] ICAO Doc 9988 can be accessed by SAP Focal Points via the ICAO secure portal