



THIRD CONFERENCE ON AVIATION AND ALTERNATIVE FUELS (CAAF/3)

Dubai, United Arab Emirates, 20 to 24 November 2023

Agenda Item 5: Reviewing the 2050 ICAO Vision for SAF, including LCAF and other cleaner energy for aviation, in order to define a global framework

ICAO GLOBAL FRAMEWORK FOR AVIATION CLEANER ENERGIES

(Presented by the ICAO Secretariat)

SUMMARY

This working paper proposes possible CAAF/3 outcomes, including draft ICAO global framework, for consideration by the Conference.

Since the pre-CAAF/3 outcome consultation event from 25 to 26 September 2023 (refer to CAAF/3-WP/9), the Climate and Environment Committee (CEC) of the ICAO Council and its Small Group have made further updates to the draft document on possible CAAF/3 outcomes, which is provided in the Appendix to this paper.

Action by the Conference is in paragraph 4.

1. INTRODUCTION

1.1 The 41st Session of the ICAO Assembly in October 2022 requested the Council to “continue to assess progress on the development and deployment of SAF, LCAF and other cleaner energy sources for aviation as part of the ICAO stocktaking process, and convene the CAAF/3 in 2023 for reviewing the 2050 ICAO Vision for SAF, including LCAF and other cleaner energy sources for aviation, in order to define a global framework in line with the *No Country Left Behind* (NCLB) initiative and taking into account national circumstances and capabilities”¹.

1.2 In this regard, since early 2023, a Small Group for Preparations for CAAF/3, under the Climate and Environment Committee (CEC) of the ICAO Council, has been considering possible CAAF/3 outcomes, including a draft ICAO global framework, taking into account the feedback and input received from various outreach and preparatory activities (also refer to CAAF/3-WP/2).

¹ Refer to Assembly Resolution A41-21, paragraph 28. f).

2. PRE-CAAF/3 OUTCOMES CONSULTATION²

2.1 As part of outreach and preparatory activities, the pre-CAAF/3 outcomes consultation event was held in Montréal from 25 to 26 September 2023 to undertake consultation among States with a focus on possible CAAF/3 outcomes, seeking convergence of views on as many issues as possible, and identifying remaining differences of views with a possible way forward to bridge them, in order to pave the way for result-oriented discussions at CAAF/3 (State letter ENV 9/1 – 23/58 refers).

2.2 A draft document on possible CAAF/3 outcomes, reflecting the progress made by the Council CEC's Small Group, was made available on the consultation event website <https://www.icao.int/Meetings/pre-CAAF3/Pages/default.aspx> (also refer to CAAF/3-WP/9). In addition, views and inputs on the draft document were submitted by 10 individual States and groups of States and by 5 Organizations, aiming to facilitate the sharing of their views to the event participants in a transparent way. The proceeding of the pre-CAAF/3 consultation is also available on the event website.

3. POSSIBLE CAAF/3 OUTCOMES

3.1 Since the pre-CAAF/3 outcome consultation event, the CEC and its Small Group have made further progress in updating the draft document on possible CAAF/3 outcomes, which is provided in the Appendix to this paper. The CEC members that were not formal members of the Small Group were invited to participate as observers.

3.2 The main updates to the draft document include the following:

- Overall, the text “scale-up of SAF, LCAF and other aviation cleaner energies” was clarified as “scale-up in the development and deployment of SAF, LCAF and other aviation cleaner energies”, where appropriate, in a consistent manner;
- At the end of *scene-setting paragraphs*, some relevant provisions from the G20 New Delhi Leaders' Declaration were added;
- At the end of *connecting paragraphs*, a new paragraph was added to further highlight the need for support to developing countries and States with particular needs;
- Paragraph 1 on a Vision for aviation cleaner energies was updated with two versions including a possible metric and quantified projections and timelines (refer to CAAF/3-WP/4 and IP/6);
- Paragraphs 5 and 17 e) were updated to clarify that the ICAO policy guidance does not provide any endorsement of specific policies (refer to CAAF/3-WP/3);
- Paragraph 6 was updated to include new sub-paragraphs b) and c) on the need to take into account cost impacts and affordability, and the latest scientific and technological developments, respectively, and sub-paragraph e) was updated to add the avoidance of extraterritorial measures;

² Pre-CAAF/3 outcomes consultation webpage: <https://www.icao.int/Meetings/pre-CAAF3/Pages/default.aspx>

- Paragraph 12 was updated to encourage ICAO to accelerate the analysis and approval of life cycle emissions for new fuel sources and pathways (refer to CAAF/3-WP/5);
- Paragraphs 14 on accounting methodologies and paragraph 15 on a study for accounting systems by ICAO were substantially updated, including the CAEP technical inputs on parameters for fuel accounting and reporting methodologies (refer to CAAF/3-WP/6);
- A new paragraph 24 was added on the scale of investment needs in aviation cleaner energies through to 2050, according to the LTAG report (refer to CAAF/3-WP/8);
- Paragraph 26 was updated to clarify the complementary role between a robust assistance and cooperation programme (A41-21, paragraph 18 c)) and those provisions related to financing (A41-21, paragraphs a) and b));
- Paragraphs 33 to 35 were updated to clarify the objectives and key activities being considered for the establishment of ICAO Finvest Hub initiative (refer to CAAF/3-IP/5); and
- A new paragraph 39 was added to highlight the need for climate financing and resources to be secured to support the aviation's cleaner energy transition for the achievement of the LTAG.

3.3 There are still some areas, where members of the CEC and its Small Group have different views, in particular on two main areas: 1) a Vision for aviation cleaner energies under Building Block #1; and 2) financing for aviation cleaner energies in Building Block #4. In this regard, paragraphs in these Building Blocks #1 and #4 are bracketed, and require further discussion in an effort to bridge these views towards and during CAAF/3.

3.4 Two versions of Paragraph 1 (Vision) have been provided as part of the draft document. They are included to help prepare experts for discussions on the Vision by outlining the range of potential outcomes and potential constructs on the Vision. They are included for placeholder purposes and should not be seen to prejudice any one particular outcome on the discussion of the Vision.

3.5 There are views that further elements on Financing (Building Block #4) need to be included in a global framework. Some CEC Small Group members have noted the need for further discussions at the CAAF/3 on the following elements, which could be progressed in conjunction with discussions on the Vision:

- Further elaboration of the investment figure referred to in Paragraph 24, including on a potential quantified dimension for the size of the private and/or public funding components;
- Further language to underscore the importance of consistency with broader multilateral climate finance efforts;
- Further language on resource mobilisation and provision to support the development and deployment of SAF, LCAF and other cleaner energies and the implementation of the Vision; and

- Further language to guide the ICAO Council's work on its consideration of the establishment of a climate financing initiative or funding mechanism.

4. **ACTION BY THE CAAF/3**

4.1 The CAAF/3 is invited to consider possible CAAF/3 outcomes, as contained in the Appendix to this paper.

APPENDIX

Possible CAAF/3 outcomes for consideration by ~~pre-CAAF/3 consultation~~ CAAF/3

~~(Montréal, Canada, 25 to 26 September 2023)~~

~~(Dubai, United Arab Emirates, 20 to 24 November 2023)~~

ICAO Global Framework for SAF, LCAF and other Aviation Cleaner Energies

Scene-setting paragraphs:

- The 41st Session of the Assembly resolved under Resolution A41-21, paragraph 7 that “ICAO and its Member States are encouraged to work together to strive to achieve a collective long-term global aspirational goal for international aviation (LTAG) of net-zero carbon emissions by 2050, in support of the Paris Agreement’s temperature goal, recognizing that each State’s special circumstances and respective capabilities (e.g. the level of development, maturity of aviation markets, sustainable growth of its international aviation, just transition, and national priorities of air transport development) will inform the ability of each State to contribute to the LTAG within its own national timeframe”.
- Assembly Resolution A41-21, paragraph 8 further recognizes that “the LTAG is a collective global aspirational goal, and it does not attribute specific obligations or commitments in the form of emissions reduction goals to individual States, and urges each State to contribute to achieving the goal in a socially, economically and environmentally sustainable manner and in accordance with national circumstances”.
- Assembly Resolution A41-21, 17th preamble “recalls the UNFCCC and the Paris Agreement and acknowledges its principle of common but differentiated responsibilities and respective capabilities, in light of different national circumstances”.
- Assembly Resolution A41-21, 18th preamble “also acknowledges the principles of non-discrimination and equal and fair opportunities to develop international aviation set forth in the Chicago Convention”.
- Achieving the LTAG requires a comprehensive approach consisting of a basket of measures, including technology, sustainable fuels, operational improvements, and market-based measures. Sustainable Aviation Fuels (SAF), Lower Carbon Aviation Fuels (LCAF) and other aviation cleaner energies are expected to have the largest contribution to aviation CO₂ emissions reduction by 2050 and, whilst there are increasing initiatives to develop and deploy these fuels, current production levels of these fuels are still extremely low at only 0.2 per cent of all aviation fuel use.
- Accordingly, there is a need for urgent global action to accelerate the global scale up ~~in development and deployment~~ of SAF, LCAF and other aviation cleaner energies in order to achieve the LTAG and thus provide ICAO’s continuous leadership in addressing emissions from international aviation.
- The Assembly Resolution A41-21, paragraph 28. f) requested to “convene the CAAF/3 in 2023 for reviewing the 2050 ICAO Vision for SAF, including LCAF and other cleaner energy sources for aviation, in order to define a global framework in line with the *No Country Left Behind* (NCLB) initiative and taking into account national circumstances and capabilities”.

- There is significant potential for States to economically, socially and environmentally contribute to, and benefit from, the value chain for the development, production and deployment of SAF, LCAF and other aviation cleaner energies, including as new economic streams and alternative sources for the energy security.
- SAF, LCAF and other aviation cleaner energies need to be developed and deployed in an economically feasible, cost-effective and socially and environmentally acceptable manner and in accordance with national circumstances.
- Means of implementation commensurate to the level of ambition, including financing, will promote the achievement of the LTAG and, by extension, the development and deployment of SAF, LCAF and other aviation cleaner energies.
- ICAO, through the ICAO Council Industry Consultative Forum; the ICAO Council's dialogues with energy and financial institutions; and the 2023 ICAO Stocktaking on Aviation in Sector CO₂ Emissions Reductions, have heard the industry calls to help reduce risk and attract investment by providing greater regulatory certainty governing SAF, LCAF and other aviation cleaner energies and better access to financing, and by establishing better collaboration and coordination between all stakeholders.
- The production of SAF, LCAF and other aviation cleaner energies is currently concentrated in a small number of States. The global framework intends to emphasize the benefits for States and ICAO in working toward the decentralization of such fuel production across all States and regions, providing a fair and equal opportunity to participate across the value chain, from feedstock to fuel production and use.
- No single fuel source will be produced at a level necessary to achieve the LTAG. Accordingly, the global framework needs to be flexible and not exclude any particular fuel source, pathway, feedstock or technology that meets the CORSIA agreed criteria.
- The global framework recognizes that aviation is part of a global effort to address climate change. The intent to accelerate the global scale up in development and deployment of SAF, LCAF and other aviation cleaner energies is consistent with the recent G20 New Delhi Leaders' Declaration, which committed to accelerating clean, sustainable, just, affordable and inclusive energy transitions. In doing so, the G20 declaration:
 - a) recognizes the need, vulnerabilities, priorities and different national circumstance of developing countries; and
 - b) supports strong enabling environments to foster innovation, voluntary and mutually agreed technology transfer, and access to low-cost financing.
- The G20 declaration also reaffirms that no country should have to choose between fighting poverty and fighting for our planet. In this regard, efforts to decarbonize aviation need to work alongside efforts to sustainably develop the sector, particularly in developing countries.

- The role of this global framework is to facilitate the global scale-up in development and deployment of SAF, LCAF and other aviation cleaner energies by providing greater clarity, consistency and predictability to all stakeholders, including those beyond the aviation sector, on the policies, regulations, implementation support, and financing and investments required, to ensure all States have equal opportunities to contribute to, and benefit from, the expected emissions reductions from such aviation cleaner energies.
- The global framework is built across four building blocks: policy and planning; regulatory frameworks; implementation support; and financing. These building blocks are interconnected and need to advance and work together to achieve their intended purpose.
- Throughout this global framework, the support for developing countries and States with particular needs, exists along a continuum, from the first step of the process to the last. Comprehensive capacity-building and implementation support and financing activities, are intended to work hand-in-hand to achieve this outcome and broader aviation decarbonization efforts in a sustainable manner.

Building Block #1 – Policy and Planning:

[Drafting note: The text in Paragraphs 1-3 and Box 1 below is included as a placeholder for an ICAO Vision as a potential element of the global framework in line with A41-21 para 28(f) and the CAAF/2 declaration. In light of the sensitivities of this topic, it is provided and square-bracketed to help prepare and facilitate a discussion on the potential inclusion of such an element but should not be read as pre-empting or pre-judging the outcome of those discussions.

1. ~~ICAO and its Member States will work together to strive to achieve a Vision for SAF, LCAF and other aviation cleaner energies (the Vision) for international aviation of x.~~
1. [To support achievement of the LTAG, ICAO and its Member States strive to achieve a collective global aspirational Vision to reduce CO₂ emissions in international aviation through the use of SAF, LCAF and other aviation cleaner energies (compared to zero cleaner energy use) by [xx per cent by 2030 and yy per cent by 2050].]
1. [ICAO and its Member States will work together to strive to achieve a Vision of duly implementing the elements of this global framework in order to globally scale-up the development and deployment for SAF, LCAF and other aviation cleaner energies, as such fuels are expected to have the largest contribution to aviation CO₂ emissions reductions in the ‘basket of measures’ to achieve the LTAG. In pursuing this Vision, each State’s special circumstances and respective capabilities will inform its ability to contribute to the Vision within its own national timeframe, and it does not attribute specific obligations or commitments in the form of emissions reduction goals to individual States.]
2. This Vision is intended to focus and align all stakeholders toward a collective global ~~ambition~~ aspiration to globally scale-up the development and deployment of SAF, LCAF and other aviation cleaner energies. It recognizes that sustainable fuels are expected to have the largest contribution to aviation CO₂ emissions reductions in the ‘basket of measures’ to achieve the LTAG.

3. Each State's special circumstances and respective capabilities will inform the ability of each State to contribute to the Vision within its own national timeframe, and it does not attribute specific obligations or commitments in the form of emissions reduction goals to individual States. In addition, the Vision should:

Box 1: Draft basis for consideration and potential quantification and measurement of a Vision

~~The Vision should (in no particular order):~~

- i enable the increased production and supply of SAF, LCAF and other aviation cleaner energies across all regions.
 - ii be flexible, attainable and feasible.
 - iii be continually monitored and periodically reviewed (refer to paragraph 10 below).
 - iv be ambitious, in order to send a positive market signal to induce demand, trigger supply and attract significant additional investment, taking into account special circumstances and respective capabilities of States.
 - v ~~be flexible.~~
 - vi not negatively impact the growth of air transport, especially in developing countries.
 - vii avoid market distortion.
 - viii be supported by the appropriate means of implementation.
 - ix not exclude any particular fuel source, pathway, feedstock or technology, as long as it meets the CORSIA sustainability criteria.
 - x take account of the projections included in the LTAG report and subsequent analysis by CAEP.
 - xi note national fuel-related emissions reduction goals and roadmaps by States and any other industry commitments.
 - xii not give rise to any mandatory measures to achieve this Vision and the objective of this framework.‡
4. States are encouraged to implement policies in support of the Vision, in a socially, economically and environmentally sustainable manner and in accordance with their special circumstances and respective capabilities.
 5. In developing these policies, States are invited to consider the usefulness and benefits of the non-exhaustive and non-prescriptive list of potential policy components contained within the 'toolkit' in paragraph 17 below, noting that ICAO guidance provides further detail on these potential policy components and the guidance does not provide any endorsement of specific policies.
 6. In developing and implementing their policies, States are encourage to recognize:
 - a) the need for, and benefits of, a combination of policies under a coherent and coordinated national plan for the scale-up in production and deployment of SAF, LCAF and other aviation cleaner energies, noting that no one single policy is likely to deliver the best and most efficient outcomes and that the appropriate policy-mix will differ between States due to different national circumstances;
 - b) the need for policies to take into account cost impacts and affordability;

- c) the need for policies to take into account the latest scientific and technological developments;
 - d) the importance of the policy's transparency, certainty and stability, for aircraft operators, feedstock producers, fuel producers, financial institutions and other relevant stakeholders; and
 - e) the need for policies to be applied in accordance with the Chicago Convention and its relevant instruments and any appropriate bilateral and multilateral agreements in place between States, with particular regard for the fundamental principles of non-discrimination, fair and equal opportunity; and the avoidance of market distortion and extraterritorial measures.
7. States are encouraged to work together towards the harmonization of policies, to the extent possible and appropriate to circumstances, across States and regions as a longer-term objective.
8. The Vision is a collaborative effort with action required from different stakeholders, and States are to encourage relevant stakeholders (i.e. aircraft operators, airports, aircraft and engine manufactures, fuel producers, ICAO's approved Sustainability Certification Schemes, and fuel standards bodies) to plan, develop and implement their own actions to help achieve the Vision, as appropriate, including:
- a) *Aircraft operators* to prioritize the signing of purchase agreements for SAF, LCAF and other aviation cleaner energies; facilitate access to for travelers, air cargo shippers and businesses who wish to voluntarily reduce their air travel footprint through access to the purchase of SAF, LCAF and other cleaner fuels; and implement measures to increase SAF compatibility within their fleets;
 - b) *Airports* to plan and deliver changes in airport infrastructure necessary to ensure efficient supply and access to drop-in fuels and, in collaboration with aircraft operators, fuel producers and other stakeholders, explore innovative ways to share the cost of such infrastructure changes across the value chain;
 - c) *Aircraft and engine manufactures* to accelerate work to ensure 100 per cent SAF compatibility is feasible in new, in-production and existing aircraft, as soon as it is considered safe to do so and in line with their announced commitments, and innovate to understand and maximize the opportunities offered by other cleaner energy sources in the longer term;
 - d) *Fuel producers* to prioritize innovation and investment into SAF, LCAF and other aviation cleaner energies and demonstrate technological readiness, scalability and sustainability of these fuels in line with the CORSIA requirements;
 - e) *ICAO's approved Sustainability Certification Schemes* to accelerate the sustainability certification of qualifying SAF, LCAF and other aviation cleaner energies in line with the CORSIA requirements; and
 - f) *Fuel standards bodies*, particularly ASTM, to work with all stakeholders to accelerate the certification and approval of additional fuel production pathways.

9. States are encouraged to include their respective policies, actions and roadmaps for the development and deployment of SAF, LCAF and other aviation cleaner energies, in their State Action Plans, and where possible, to:
 - a) identify resources, capacity and other factors (e.g. capacity assistance and access to technology) required;
 - b) help ICAO to tailor capacity building and implementation support measures, including facilitating access to financing and funding, in line with the State's needs; and
 - c) to quantify their Plans, to support ICAO's work in monitoring progress towards achieving the LTAG.

10. The implementation of the global framework should be continually monitored and periodically reviewed, including through annual ICAO stocktaking, and the convening of CAAF/4. This ensures regular evaluation of:
 - a) progress on emissions reductions from SAF, LCAF and other aviation cleaner energies toward the achievement of the LTAG, including through the gathering, compiling and analyzing, by ICAO, of actions undertaken by States according to their State Action Plans and other relevant State reporting mechanisms;
 - b) progress, at a global and regional level, on means of implementation support, including financing, provided to achieve the emissions reductions from SAF, LCAF and other aviation cleaner energies toward the achievement of the LTAG, including through the gathering, compiling and analyzing, by ICAO, of actions undertaken by States, industry, and other stakeholders; and
 - c) impacts on the sustainable growth of the aviation industry, cost impacts (including airfares and the price of SAF, LCAF and other cleaner energies), and the maintenance of fair and equal opportunities for the development and deployment of SAF, LCAF and other aviation cleaner energies.]

Building Block #2 – Regulatory Framework:

11. In the interests of providing regulatory transparency, certainty, stability and assurances of environmental integrity to feedstock producers, fuels producers and financial institutions, the CORSIA sustainability criteria, sustainability certification, and the methodology for the assessment of life cycle emissions used for 'CORSIA eligible fuels', should be used as the accepted basis for the eligibility of sustainable fuels used in international aviation.

12. ICAO, States and industry are encouraged to enhance efforts to increase the number of ICAO approved Sustainability Certification Schemes, in all regions, to accelerate the sustainability certification of qualifying SAF, LCAF and other aviation cleaner energies in line with the CORSIA requirements, without excluding any particular fuel source, pathway, feedstock or technology. In this regard, ICAO, with technical and neutral contributions of CAEP, is encouraged to accelerate the analysis and approval of life cycle emissions for new fuel sources and pathways.

13. ICAO, States, industry and other relevant stakeholders are encouraged to work with fuel standards bodies, such as ASTM, to accelerate the certification of additional fuel production pathways, with a view to maximizing the number of certified sources of SAF, LCAF and other aviation cleaner energies.
14. Accounting methodologies on the use of SAF, LCAF and other aviation cleaner energies for international aviation, such as the CORSIA MRV, provides confidence in the use of such fuels and the claim of their environmental benefits by aeroplane operators, noting that such accounting methodologies could help support the monitoring of progress towards the achievement of the LTAG. Accounting methodologies and the associated reporting frameworks should take into account the following parameters, which seek to promote transparency, accuracy, consistency, comparability and completeness. Recognizing that the environmental benefits of sustainable fuels are already being traded across a virtual marketplace, including *inter alia*, so-called ‘book and claim’ concepts, it is important to consider if existing accounting methodologies on the use of SAF, LCAF and other aviation cleaner energies for international aviation can provide confidence in the use of such fuels and the claim of their environmental benefits by aeroplane operators. These accounting methodologies should take into account the following:
- a) ensure the global coverage of emissions from international civil aviation, as part of the monitoring of the LTAG;
 - b) support consistent application of methodologies amongst States, in a transparent manner;
 - c) enable accurate emissions reporting, including the use of cleaner energy for international civil aviation;
 - d) ensure environmental integrity through the avoidance of double-counting, including between domestic and international civil aviation;
 - e) use verified emissions information, supported with other information for the verification or validation of reported emissions;
 - f) promote cost-effectiveness by using simple accounting and reporting methodologies and procedures;
 - g) avoid excessive administrative burden on States and aeroplane operators; and
 - h) leverage, to the extent possible, existing methodologies and procedures under the CORSIA MRV.
- [subject to further discussion of CAEP technical inputs]
15. ICAO should, with technical contributions of CAEP, undertake a study of fuel accounting systems for international aviation currently used in the open market. This study would include preliminary exploration of the so-called ‘book and claim’ concept to assess its relevancy and applicability, and taking into account relevant developments in other UN bodies, including the Article 6 of the Paris Agreement. The intent of the study would be to better understand these accounting systems and concepts and identify potential areas for further investigation. This work can help determine what, if any, role ICAO could have in supporting these systems to facilitate access to environmental benefits of SAF, LCAF and other aviation cleaner energies for international aviation and ensure environmental integrity, with a view to fostering without disincentivising the global production of such fuels, in particular in developing countries. Using above, ICAO should study, with technical contributions of CAEP and other relevant stakeholders, the need and potential benefits of harmonizing fuel accounting methodologies for international aviation, noting that these methodologies could also help support the monitoring of progress towards the achievement of the LTAG.

Building Block #3 – Implementation Support

16. All States should have access to the means to participate across all stages of the development and deployment of SAF, LCAF and other aviation cleaner energies, and all States and regions are encouraged to work together in a spirit of solidarity to ensure there is a truly global effort to contribute to, and benefit from, the work to reduce emissions from such aviation cleaner energies.
17. The global scale-up in production of SAF, LCAF and other aviation cleaner energies requires a robust and substantial capacity-building and implementation support programme. States, ICAO, industry, academia and other relevant stakeholders are encouraged to work together to deliver such a programme that:
 - a) recognizes the need for tailored support to account for the various stages of readiness and different circumstances across States and regions;
 - b) facilitates partnerships, alliances and cooperation between States and all relevant stakeholders, including regional collaborations that may result in regional solutions that produce fuels efficiently;
 - c) includes exchange of information, sharing of best practices and technological developments among States, for which ICAO should provide a platform to facilitate this exchange and track progress;
 - d) supports States in their planning, development and implementation of national and regional policies that can be applied across all stages of fuel supply-chain, including the following potential policy components that form part of a non-exhaustive ‘toolkit’ (referred to paragraphs 5 and 6 above):

Box 2: ‘Toolkit’ of potential components for national policies

- i. foster multi-stakeholder partnerships, alliances and cooperation, including with (as appropriate) aeroplane operators, airports, aircraft and engine manufacturers, energy producers and financial institutions.
- ii. government incentives, including loans, grants, tax credits, regulatory support and other mechanisms for:
 - research and development, including determination of the technology readiness level.
 - sourcing of potential feedstock.
 - development and acceleration of feedstock production.
 - development and acceleration of fuel production.
- iii. targets and/or mandates for:
 - emissions reduction levels.
 - uptake of SAF, LCAF and other aviation cleaner energies.
 - fuel blending levels.
- iv. where beneficial, identify SAF, LCAF and other aviation cleaner energies as priorities for financing for economy-wide decarbonization efforts.

- v. promote increasing the number of ICAO approved Sustainability Certification Schemes for SAF, LCAF and other aviation cleaner energies.
 - vi. promote feasibility studies for potential SAF, LCAF and other cleaner energy pathways.
 - vii. promote necessary changes in airport and energy supply infrastructure.
 - viii. promote the use of Public Private Partnerships to deliver SAF and LCAF projects.
- e) regularly updates the ICAO detailed guidance on the ‘policy toolkit’ and the ‘Rules of Thumb’, where applicable, to estimate the costs, investment needs and production potentials, to help inform States’ consideration of the selection of national and regional policies that are appropriate to their circumstances, noting that the guidance does not provide any endorsement of specific policies;
- f) supports the delivery, in a continuum, of feasibility studies, pilot projects, and ‘proof of concept’ plans, which may facilitate access to investment for their implementation;
- g) develops and provides training to enhance State’s awareness and readiness, as well as to support the SAF and LCAF project’s readiness to attract investment, including training on financial aspects of project development, financial planning and investment promotion; and
- h) assists in the development of relevant aspects of State Action Plans and roadmaps, including ICAO guidance and tools, and State-to-State support partnerships, noting that State Actions Plans may also include information on specific assistance needs for the implementation of measures to reduce aviation CO₂ emissions, which may facilitate access to investment and technology.
18. Access to technology is imperative for States to contribute to, and benefit from, cleaner energy development and deployment. Accordingly, States and industry are urged to promote and facilitate the voluntary and effective transfer of technology, in particular to developing countries and States with particular needs, in line with the *No Country Left Behind* (NCLB) initiative and noting the global benefits that come from increasing the supply of cleaner energy.
19. The ICAO capacity-building and implementation support should be delivered in an efficient, effective and coordinated manner under the ‘one-ICAO’ approach, incorporating support for all stages of SAF, LCAF and other aviation cleaner energies development and deployment, and building upon the success of the ACT-CORSIA and ACT-SAF programmes. States are also encouraged to develop specific projects under the ICAO Technical Cooperation Programme.
20. In line with the *No Country Left Behind* initiative, States are urged to make regular and substantial contributions to the ICAO Voluntary Environment Fund and other in-kind contributions (e.g. secondments) to support delivery of the substantial ICAO capacity building and implementation support programme, aimed at assisting developing countries and States with particular needs, including, as a priority, for feasibility studies and technology adaption.
21. Industry is also urged to provide expertise and financial support to support delivery of the substantial capacity building and implementation support programme including, as a priority, for feasibility studies and technology adaption.

22. ICAO should regularly monitor the progress and effectiveness of the capacity-building and implementation support efforts, including ensuring there are sufficient resources to deliver its support programme, as part of the broader means of implementation. In this regard, ICAO should consider developing necessary methodologies for monitoring and reporting back to States.

Building Block #4 – Financing

23. [] As recognized in Assembly Resolution A41-21, paragraph 17, “means of implementation commensurate to the level of ambition, including financing, will promote the achievement of the LTAG. It requires substantial investments for States, according to their national circumstances, and that various possible modalities and/or funding mechanisms could be used by ICAO to facilitate financing and investment support for implementation of specific aviation CO₂ emissions reduction measures”.
24. According to the LTAG report, fuel suppliers will need to invest up to 3.2 trillion USD in producing aviation cleaner energies through to 2050, and additional investments will be needed for other aviation CO₂ reduction measures such as aircraft technologies and operational improvements. The scale of this task presents both challenges and opportunities for ICAO, States and other stakeholders, including the financing community.
25. Specific to financing and funding, Assembly Resolution A41-21, paragraphs 18. a) and b), request the Council to:
- a) “initiate specific measures or mechanisms so as to facilitate, in particular for developing countries and States having particular needs, better access to private investment capacities, as well as funding from financial institutions, such as development banks, for projects contributing to the decarbonization of international aviation, as well as encourage new and additional funding to this purpose”; and
 - b) “further consider the establishment of a climate finance initiative or funding mechanism under ICAO, while addressing the possible financial, institutional and legal challenges, and report to the 42nd Session of the ICAO Assembly”.
26. These two paragraphs of the Assembly Resolution, which are complementary to a robust assistance and cooperation programme dedicated to LTAG as requested by paragraph 18. c) of Resolution A41-21, must be urgently progressed, in parallel, if the challenge of scaling-up SAF, LCAF and other aviation cleaner energies is to be addressed at the global level in a sustainable manner, including economic, social and environmental concerns.
27. The primary objective for ICAO and its Member States with respect to financing should be to support developing countries and States with particular needs to improve access to financing and funding, and further de-risking of projects to develop and deploy SAF, LCAF and other aviation cleaner energies in order to stimulate investment.
28. Measures to attract greater investment in SAF, LCAF and other aviation cleaner energies from development banks and other capital markets should work in collaboration with, and not impact, ICAO

efforts under Assembly Resolution A40-22, particularly paragraph 8, to “continue fostering ICAO’s partnership with financial institutions seeking the prioritization or inclusion of aviation in their agendas and work programmes in order to facilitate States’ access to fund or finance their aviation development projects”.

29. Some financing instruments (e.g. blended finance and Public-Private Partnerships) require significant cooperation and collaboration between stakeholders, including States, industry and public and private financial institutions, to mitigate the investment risk. There is a role for ICAO and its Member States to engage in this cross-stakeholder collaboration as appropriate.
30. ICAO, States and industry have a key role to play in advocating for greater investment in SAF, LCAF and other aviation cleaner energy projects by increasing awareness and understanding amongst the international finance community on:
 - a) the collective commitment of States and the industry to achieve the LTAG;
 - b) the importance of the sustainable growth of the international aviation sector including the economic and social connectivity and trade flows;
 - c) the benefits of the use of SAF, LCAF and other aviation cleaner energies to address aviation’s contribution to climate change;
 - d) the strong action from ICAO, States and industry to the global scale-up of SAF, LCAF and other aviation cleaner energies;
 - e) the direct and indirect economic and social benefits to States across the value chain of SAF and LCAF production;
 - f) the scale of the demand for SAF, LCAF and other aviation cleaner energies;
 - g) the challenges to accessing adequate financing for projects for SAF, LCAF and other aviation cleaner energies; and
 - h) potential investment opportunities and returns.
31. As part of this advocacy and outreach, States and ICAO should enhance and deepen their engagement and dialogue with the international finance community and other relevant stakeholders, including:
 - a) public and private financial institutions, including sub-national, national, regional and multilateral banks;
 - b) private capital markets, including investors and insurers;
 - c) capital and banking alliances;
 - d) donor States;
 - e) UN, and other internationally-recognized funds and investment vehicles; and
 - f) energy producers.
32. ICAO, in cooperation with States, should develop a series of case studies of successful SAF, LCAF and other aviation cleaner energies projects, drawing from examples in regions with different characteristic and investment risk. Such case studies could assist both project developers and prospective investors by providing examples of ‘tried and tested’ pathways for investment and instill confidence that investment opportunities can be realized.
33. ¶States acknowledge and welcome the establishment of the ‘ICAO Finvest Hub’ and look forward to its work to facilitate enhanced access to public and private investment capacities and funding from financial institutions, with a focus on developing countries and States with particular needs, for projects

contributing to the decarbonization of international aviation, including for the scale-up in development and deployment of SAF, LCAF and other aviation cleaner energies, as well as encourage new and additional funding for this purpose.

34. As a first step, ICAO should urgently put in place the necessary governance structures and capability, toward the operationalization of the proposed 'ICAO Finvest Hub' initiative. Such work should clearly identify how the Finvest Hub initiative complements broader aviation decarbonization capacity building and implementation efforts, including the ACT-SAF programme.
35. ~~Measures~~ Key activities that the ICAO Finvest Hub could ~~take to facilitate access to financing~~ undertake include:
- a) developing a platform to connect aviation decarbonization projects with potential public and private investors, including a 'matchmaking' function, thus enabling investors to identify and assess projects;
 - b) working with various stakeholders to explore innovative funding and risk mitigation mechanism adapted to the decarbonisation of aviation, incentivizing investments, and promoting collaboration among stakeholders to mobilize financial resources effectively (e.g. fostering Public Private Partnerships); ~~and~~
 - c) collaborating with financial institutions, such as development banks, to create pathways for the funding of projects; ~~→~~
36. ~~ICAO should also consider, [whether through the ICAO Finvest Hub or other initiatives]:~~
- ~~a)~~ d) developing a database of funding and financing sources, together with their terms and conditions, for project developers to be able to draw on; and
 - ~~b)~~ e) developing a toolkit of term sheets templates (basic conditions to satisfy investors) for SAF, LCAF and other aviation cleaner energies ~~financing or drafting of funding proposals.~~
36. Private capital alone will not be enough to fully address the challenge of scaling-up in development and deployment of SAF, LCAF and other aviation cleaner energies. Sizeable public investment, including in the form of concessionary funding, will be required to support some SAF, LCAF and other aviation cleaner energy projects, particularly in developing countries.
37. States recognize the important role that ICAO can play in encouraging new, additional and predictable public funding flows and its transparent and effective disbursement. ICAO and its Member States need to ensure 'no stone is left unturned' in exploring avenues to support this public investment objective, including the potential for ICAO to establish its own climate financing initiative or funding mechanism.
38. To this end, States underscore the importance of Assembly Resolution A41-21, paragraph 18. b) and agree that ICAO should expedite its work to further consider the establishment of a climate finance initiative or funding mechanism under ICAO, while addressing the possible financial, institutional and legal challenges. This work must be completed for consideration by the 42nd Session of the ICAO Assembly, in accordance with A41-21, paragraph 18. b).
39. Globally, there are ongoing efforts to mobilize climate finance and maximize the effect of concessional resources in order to support clean energy transitions. Aviation needs to ensure that it secures its 'fair share' of these efforts to support its own transition and the achievement of the LTAG.

40. In this regard, ICAO and its Member States should ~~also~~ initiate a work stream to actively monitor developments in the UN and across the international financing community, including *inter alia* the Green Climate Fund and its upcoming replenishment, the Net Zero Asset Owner Alliance, and the Multilateral Development Banks Vision Statement, to identify and aggressively pursue opportunities to increase the allocation or earmarking of public and private capital devoted to aviation decarbonization projects, particularly on SAF, LCAF and other aviation cleaner energies. ~~[As an example, such opportunities could include:~~
- ~~a) UN Green Climate Fund~~
 - ~~b) Net Zero Asset Owner Alliance~~
 - ~~c) Paris Multilateral Development Banks Vision Statement].]~~

— END —