



Understanding the CORSIA Package

A CRITICAL GUIDE TO KEY PROVISIONS IN THE DRAFT STANDARDS AND RECOMMENDED PRACTICES AND RELATED GUIDANCE MATERIAL FOR THE UN INTERNATIONAL CIVIL AVIATION ORGANIZATION'S CARBON OFFSETTING AND REDUCTION SCHEME FOR INTERNATIONAL AVIATION (CORSIA)

ICSA

International Coalition *for*
Sustainable Aviation



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Acronyms

CAEP	ICAO's Committee on Aviation Environmental Protection
CCR	CORSIA Central Registry
CERT	CO ₂ Estimation and Reporting Tool
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation
EUC	Emissions unit criteria or emissions unit eligibility criteria
ICAO	International Civil Aviation Organization
ICSA	International Coalition for Sustainable Aviation
ILUC	Induced land use change
LCA	Life cycle assessment
LSf	Life cycle emissions value for a sustainable aviation fuel
MRV	Monitoring, reporting, and verification
PFAD	Palm fatty acid distillate
SAF	Sustainable aviation fuel
SARPs	Standards and recommended practices
SCS	Sustainability certification schemes
SDGs	UN Sustainable Development Goals
TAB	Technical Advisory Body
UNFCCC	United Nations Framework Convention on Climate Change, now called UN Climate Change.



Executive Summary

Agreed in October 2016 by 191 countries in the UN International Civil Aviation Organization (ICAO), the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)¹ is the world's first global market-based climate measure for a sector. While agreement to establish CORSIA was an important development, ICSA believes that it is only one component of the action needed to make international aviation compliant with the objectives of the Paris Agreement adopted in 2015 by the 197 Parties to the United Nations Framework Convention on Climate Change.² It is not only important that CORSIA operates effectively to achieve its intended goals but also that the overall ambition of CORSIA is ratcheted up beyond its stated aspirational goal of stabilizing international civil aviation emissions at 2020 levels. To ensure emission reductions are consistent with the Paris Agreement's temperature goals, there must be government action taken on a State and regional level beyond what ICAO can deliver.

On December 5, 2017, the ICAO Secretary General distributed to all ICAO Member States the draft First Edition of Annex 16, Volume IV, concerning Standards and Recommended Practices (SARPs) to implement CORSIA.³ The so-called "CORSIA Package" represents the culmination of four years of technical work to establish (1) processes to translate CORSIA's emissions coverage through state pairs; (2) emissions monitoring, reporting, and verification procedures; (3) emissions unit quality criteria; (4) sustainable aviation fuels provisions; and (5) procedures for aeroplane operators to register and report their use of emissions units and aviation alternative fuels to ensure that compliance is transparent and there is no double counting.

...ICSA identifies several areas of the CORSIA Package that must be strengthened before the Package is agreed in order for CORSIA to function properly and achieve its environmental purpose.

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- ¹ *Resolution A39-2: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*, ICAO 39th Assembly (October 2016). https://www.icao.int/environmental-protection/Documents/Resolution_A39_2.pdf.
 - ² *The Paris Agreement*, UNFCCC (December 2015), https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf.
 - ³ The "CORSIA Package" has been distributed to all 192 ICAO Member States. Some States have posted the document online or distributed it to stakeholders. The "CORSIA Package" can be found here: http://icsa-aviation.org/wp-content/uploads/2018/01/ICAO_CORSIA_draft_-SARP.pdf.

The International Coalition for Sustainable Aviation (ICSA) developed this document to aid States in their responses to the ICAO Secretary General on the CORSIA Package State Letter. This guide provides a snapshot of the key components of the CORSIA Package (and associated ICSA recommendations) but is not intended to be a comprehensive summary of the Package.

While the majority of the CORSIA Package is technically sound and should be maintained, ICSA identifies several areas of the CORSIA Package that must be strengthened before the Package is agreed in order for CORSIA to function properly and achieve its environmental purpose.

The International Coalition for Sustainable Aviation's top-line recommendations from the CORSIA Package are:

- **CORSIA reporting as proposed in the CORSIA Package is not sufficiently transparent.** Allowing third parties to access aeroplane operator emissions reports would help ensure the environmental integrity of CORSIA and avoid market distortion by deterring special treatment of carriers. However, if States choose to keep the CORSIA Package text remains as it is, the burden is on them to actively verify other States' emissions reports with the tools and approaches currently laid out in the SARPs.
- **The CORSIA SARPs Package must continue make clear that only CORSIA Emissions Eligible Emissions Units can be used for compliance with CORSIA.** A State must not be able to apply these criteria or some other criteria unilaterally.
- **ICAO should refrain from crediting aviation alternative fuels under CORSIA until the sustainable aviation fuels provisions in the CORSIA Package, particularly the sustainability criteria, are strengthened.**⁴ The sustainability criteria—against which aviation alternative fuels are evaluated for eligibility under CORSIA—must be strengthened to encompass not only emissions reductions of the fuels but also their social, economic, and other environmental sustainability attributes as well. Comprehensive, robust sustainability criteria should be included in the final CORSIA Implementation Elements before the CORSIA pilot phase goes into effect on January 1, 2021.
- **States should publicly disclose their responses to the CORSIA Package State Letter.** If a critical mass of States discloses this information, it will encourage greater public confidence in this ICAO State Letter process, including any text changes made by ICAO or the ICAO Council.

The deadline for States to respond to the CORSIA Package is March 5, 2018. For more detail on the structure of the CORSIA Package and the process for States to respond to ICAO, see Appendix 1 and Appendix 2 respectively.

⁴ According to the CORSIA Package, an aviation alternative fuel is defined as “[a] non-petroleum-based drop-in aviation fuel,” (page A-10). Sustainable aviation fuels are defined as “[an] aviation alternative fuel that meets the CORSIA Sustainability Criteria” (page A-11). ICSA stresses that aviation alternative fuels should not be classified as “sustainable” unless they meet comprehensive and rigorous sustainability criteria.



Introduction

On October 6, 2016, the 191 Member States of the Assembly of the UN International Civil Aviation Organization (ICAO) adopted a resolution establishing the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA).⁵ CORSIA is the world's first global market-based climate measure for a sector, and one element of ICAO's "basket of measures," which also includes operational improvements, aircraft technology improvements, and sustainable aviation fuels. ICAO has agreed to utilize the basket of measures to meet its aspirational goal of stabilizing net carbon dioxide emissions from international civil aviation at 2020 levels (i.e. "carbon-neutral growth" from 2020).⁶ CORSIA will be in effect from 2021-2035 and cover only emissions from international airline routes, which account for about 60 percent of global aviation carbon emissions.⁷ To date, 73 countries have volunteered for the pilot phase of CORSIA (2021-2023).⁸ With all flights between these nations subject to CORSIA, plus the participation of a broader set of nations in subsequent years, approximately 78 percent of international aviation emissions above 2020 levels will be covered by CORSIA, and more if other nations also volunteer.⁹

In the wake of the agreement in October 2016, airlines, carbon market actors, and governments have been preparing for CORSIA implementation. While the CORSIA pilot

5 *Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme*, ICAO 39th Assembly (October 2016), https://www.icao.int/environmental-protection/Documents/Resolution_A39_3.pdf

6 *Ibid.*

7 "In accordance with the IPCC Guidelines for the preparation of greenhouse gas (GHG) inventories and the UNFCCC reporting guidelines on annual inventories, emissions from international aviation and maritime transport (also known as international bunker fuel emissions) should be calculated as part of the national GHG inventories of Parties, but should be excluded from national totals and reported separately." http://unfccc.int/methods/emissions_from_intl_transport/items/1057.php CO₂ emissions from domestic aviation represent ~40% of global aviation's emissions (<http://pubs.acs.org/doi/abs/10.1021/es902530z>), but these emissions should be included in national emissions inventories submitted to the UNFCCC.

8 "Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)," ICAO, January 2018, <https://www.icao.int/environmental-protection/Pages/market-based-measures.aspx>.

9 "ICAO's market-based measure," *Environmental Defense Fund (EDF)*, 2018, <https://www.edf.org/climate/icaos-market-based-measure>.

phase will begin January 1, 2021, countries and airlines will have CORSIA-related obligations sooner and must take preparatory actions throughout 2018 as emissions monitoring will begin January 1, 2019.¹⁰

However, even as preparations are being made for CORSIA's take-off, the precise details and governance arrangements that are integral to CORSIA's administration have not yet been finalized by ICAO Member States.

On December 5, 2017, the ICAO Secretary General distributed to all ICAO Member States the draft First Edition of Annex 16, Volume IV, concerning Standards and Recommended Practices (SARPs) to implement CORSIA.¹¹ The so-called "CORSIA Package" represents the culmination of four years of technical work to establish (1) processes to translate CORSIA's emissions coverage through state pairs; (2) emissions monitoring, reporting, and verification procedures; (3) emissions unit quality criteria; (4) sustainable aviation fuels provisions; and (5) procedures for aeroplane operators to register and report their use of emissions units and aviation alternative fuels to ensure that compliance is transparent and there is no double counting. **While the majority of the CORSIA Package is technically sound and should be maintained, ICSA identifies several areas of the CORSIA Package that must be strengthened before the Package is agreed in order for CORSIA to function properly and achieve its environmental purpose.**

The Standards and Recommended Practices are annexes to the 1944 Chicago Convention which established ICAO.¹² When developing SARPs, ICAO contacts States through a State Letter, requesting feedback on the text. ICAO Member States have the opportunity to send their comments on the CORSIA Package to the ICAO Secretary General no later than March 5, 2018. The ICAO Secretariat will then compile these comments, the ICAO Council will then consider and approve the next version of the CORSIA Package, and on January 1, 2019 the CORSIA SARPs will go into effect.

The International Coalition for Sustainable Aviation developed this document to aid States in their responses to the ICAO Secretary General on the CORSIA Package State Letter.

ICAO Member States have the opportunity to send their comments on the CORSIA Package to the ICAO Secretary General no later than March 5, 2018.

10 For a list of actions that states will need to take, please see "Carbon Offsetting and Reduction Scheme for *International* Aviation (CORSIA): Implementation Plan," ICAO, December 2017, https://www.icao.int/environmental-protection/Documents/CorsiaBrochureRevised_8Panels-Web_Final.pdf. For a list of actions that airlines must take, please see "Countdown to CORSIA: Is your airline ready?," *Air Transport Action Group* (ATAG), June 2017, <https://aviationbenefits.org/media/165893/atag-corsia-checklist-june-19-web.pdf>.

11 The "CORSIA Package" has been distributed to all 192 ICAO Member States. Some States have posted the document online or distributed it to stakeholders. The "CORSIA Package" can be found here: http://icsa-aviation.org/wp-content/uploads/2018/01/ICAO_CORSIA_draft_-SARP.pdf.

12 UN International Civil Aviation Organization. (ICAO), *Convention on Civil Aviation ("Chicago Convention")*, 7 December 1944, (1994) 15 U.N.T.S. 295, <http://www.refworld.org/docid/3ddca0dd4.html>; see also https://www.icao.int/publications/Documents/7300_cons.pdf



What is the CORSA Package

In a nutshell, the CORSIA Package encompasses the technical standards and guidance that ICAO Member States and participating aircraft operators need to follow in order to implement CORSIA. Over the last 74 years, an essential part of ICAO's mission has been for the elected Governing Council, currently comprising 36 Member States, to adopt Standards and Recommended Practices (SARPs) to standardize the safety and efficiency of international civil aviation. SARPs are described in Chapter VI of the Chicago Convention on International Civil Aviation and, in accordance with Article 37 of the Convention, are adopted as Annexes to the Convention itself.

Once the ICAO Council adopts the CORSIA Package, as with all SARPs, Member States will determine how to implement the SARPs via domestic regulation or legislation on a national level. SARPs are considered to be binding under the Convention as each State "...undertakes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures..."¹³ To date, ICAO has issued some 10,000 standards, contained in nineteen Annexes to the Chicago Convention.¹⁴

¹³ *Ibid.*

¹⁴ "ICAO Annexes and Doc Series," Skybrary, September 2017, https://www.skybrary.aero/index.php/ICAO_Annexes_and_Doc_Series.



How to use *Understanding the CORSA Package*

This document is meant to:

- Help governments and other interested stakeholders understand the technical content and environmental and social implications of the CORSIA Package.
- Provide options for States to respond to certain provisions in the CORSIA Package to ensure that CORSIA is effectively implemented such that it aligns with the goals of the Paris Agreement.¹⁵

The section titled “Detailed analysis and recommendations on the CORSIA Package” on page 15 evaluates areas of the CORSIA Package by topic and provides a recommendation on whether changes are needed to the CORSIA Package. **ENHANCE** means that ICSA recommends that States—in their responses to the Secretary General—request specific changes to the draft CORSIA SARP text or Implementation Elements or note concern. **MAINTAIN** means ICSA recommends no changes to the CORSIA SARPs or Implementation Elements at this time. In some cases where uses the label **MAINTAIN**, ICSA provides additional commentary about concerns and potential challenges for CORSIA implementation even as no specific text change is recommended at this time.

Disclaimer: This guide provides a snapshot of the key components of the CORSIA Package and is not intended to be a comprehensive summary of it.

¹⁵ The Paris Agreement on Climate Change was adopted in December 2015 by 195 nations, including all Parties to the Chicago Convention on International Civil Aviation. Among other provisions, the Paris Agreement establishes a goal of holding the increase in the global average temperature to well below 2°C above pre-industrial levels and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; and an aim of achieving a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century. “Paris Agreement – Status of Ratification,” UNFCCC, 2014, http://unfccc.int/paris_agreement/items/9444.php

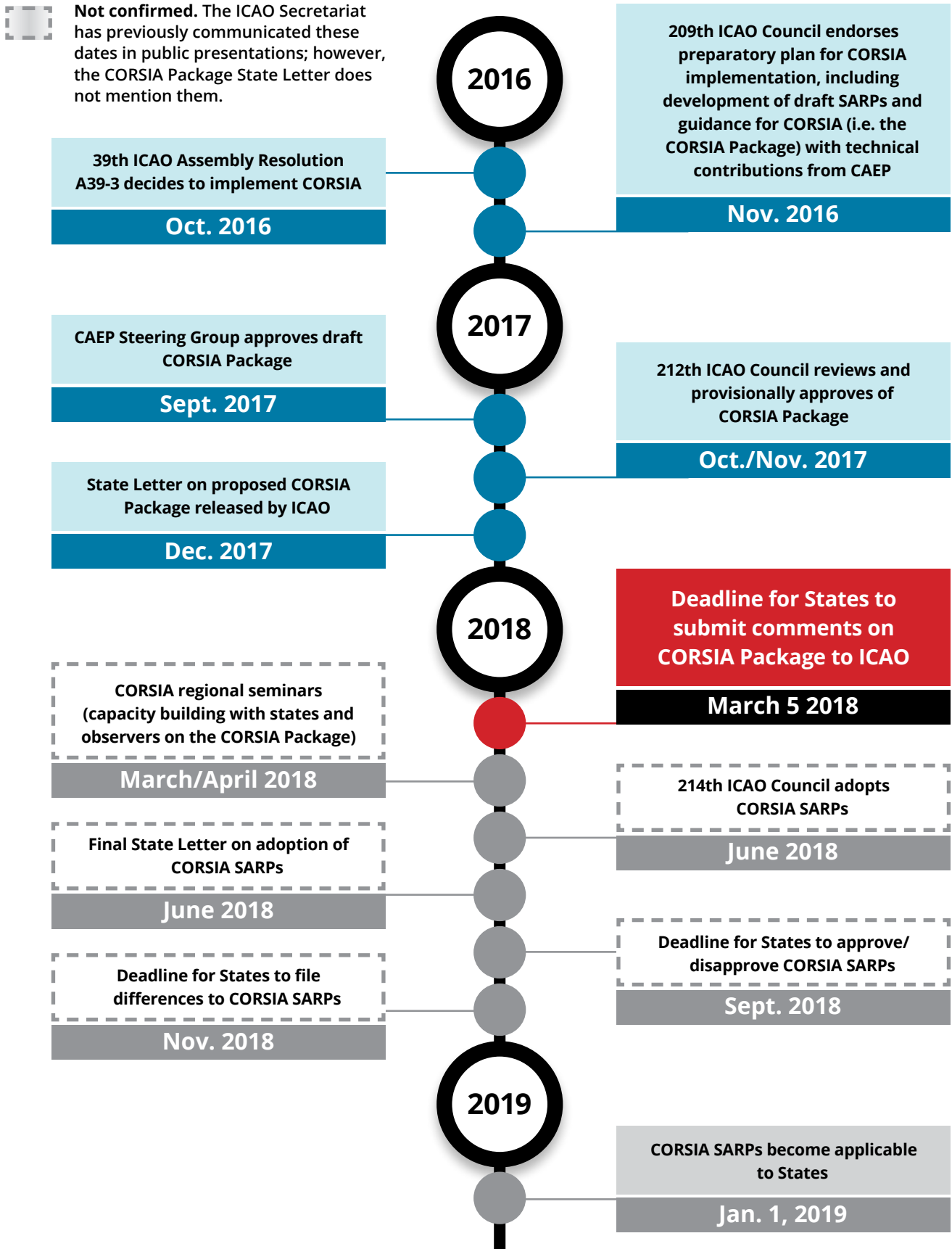


Timeline for the CORSlA SARP_s

The most recent timeline released by the ICAO Secretariat indicates that the ICAO Council plans to finalize the CORSlA SARP_s by June 2018 in order for States to adopt and implement the rules in their own domestic regulatory processes. The CORSlA SARP_s will become applicable to States January 1, 2019. All States, whether they volunteer for CORSlA's pilot phase or not, will be obliged to begin monitoring, reporting, and verifying CO₂ emissions from international flights starting January 1, 2019. Thus, States will be considering and implementing the SARP_s while they are preparing to participate, and participating, in the Paris Agreement on climate change, whose timelines are also relevant.

Figure 1 on page 10 outlines the timeline for the CORSlA SARP_s to be finalized and implemented.

Figure 1 – Timeline for finalizing the CORSIA SARPs



Disclaimer: In this visual timeline “CORSIA SARPs” refers only to the proposed First Edition of Annex 16, Volume IV to the Chicago Convention on International Civil Aviation. The “CORSIA Package” includes the CORSIA SARPs as well as the draft CORSIA Implementation Elements and Supporting Documents. Note that States’ comments on the CORSIA Implementation Elements and Supporting Documents will inform future deliberations by the ICAO Council but will not be formally included in the current review of the CORSIA SARPs.



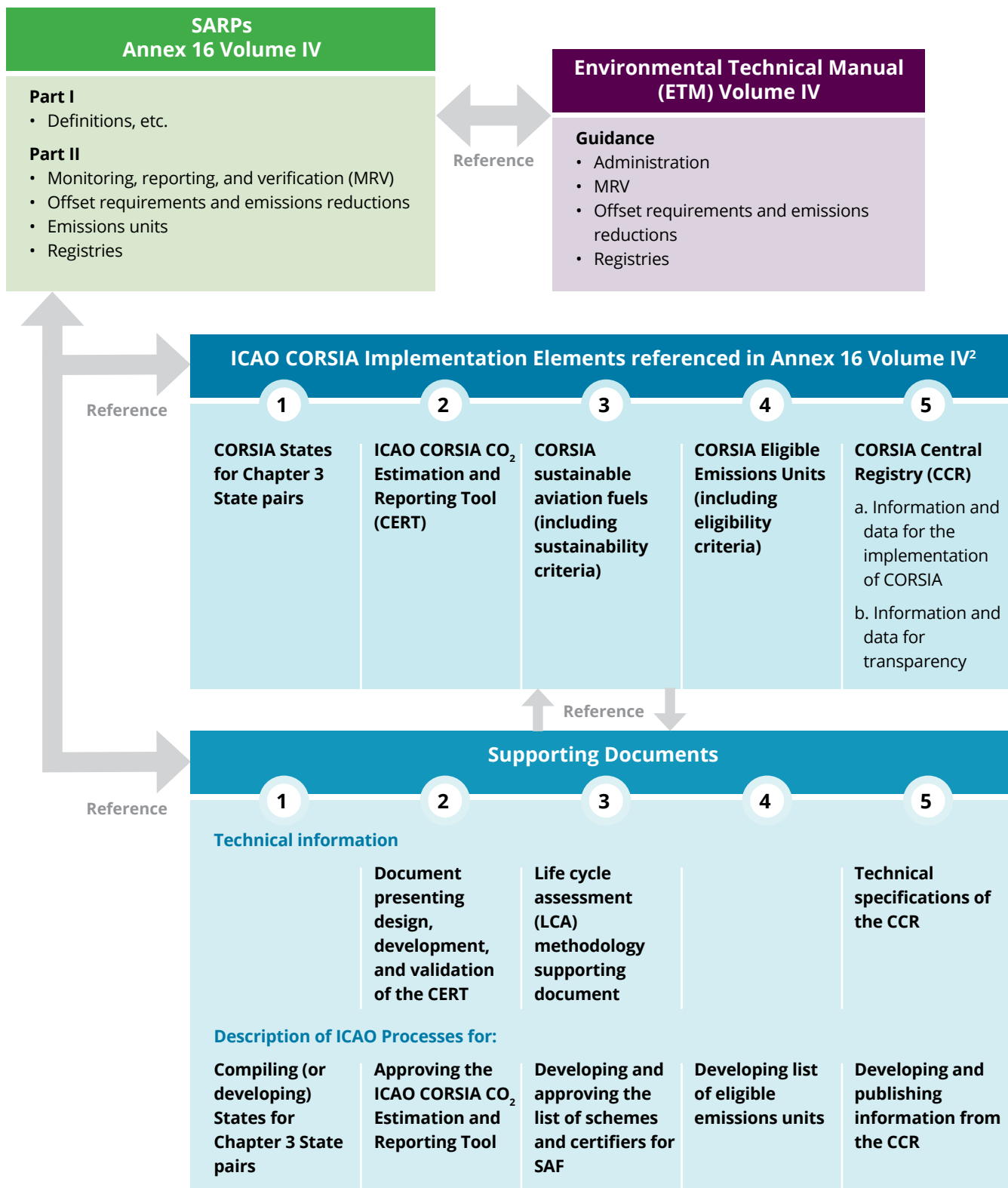
Structure of the CORSIA Package

The CORSIA Package includes several separate but related components of varying legal status (See Figure 2 on page 12). The SARPs Annex 16 Volume IV is the primary legal vehicle of the CORSIA Package. The Environmental Technical Manual Volume IV provides guidance for States on how to operationalize the requirements in the SARPs Annex 16 Volume IV. The draft ICAO CORSIA Implementation Elements are directly referenced in the proposed First Edition of Annex 16, Volume IV—CORSIA and are considered essential for the implementation of the SARPs. The Supporting Documents are (1) descriptions of ICAO processes that would assist in managing and maintaining the ICAO CORSIA Implementation Elements, and (2) technical information on the development of the ICAO CORSIA Implementation Elements.

For more details on how the CORSIA Package is organized, the interconnections between different sections, and legal standing of the separate components, please see “Appendix 1: Detailed Explanation of CORSIA Package Structure and Legality” on page 33. For more on how States are to respond, see “Appendix 2: Summary of the Process for States to Respond” on page 35.

Figure 2 – Structure of the CORSIA Package¹

Containing various components including the Annex 16 Volume IV (SARPs), ETM, ICAO CORSIA Implementation Elements and Supporting Documents.



¹ Image adapted from ICAO Secretariat, *Figure 1 – CORSIA Package containing various components including the Annex 16 Volume IV (SARPs), ETM, ICAO CORSIA Implementation Elements and Supporting Documents*. December 5, 2017. ATTACHMENT C to State letter ENV AN 1/17.14 – 17/129. Page C-5.

² Content of the ICAO CORSIA Implementation Elements are expected to be under authority of and approved by Council.



Analysis and Recommendations

Summary of ICSA recommendations

The International Coalition for Sustainable Aviation's top-line recommendations from the CORSIA Package are:

- **CORSIA reporting as proposed in the CORSIA Package is not sufficiently transparent.** Allowing third parties to access aeroplane operator emissions reports would help ensure the environmental integrity of CORSIA and avoid market distortion by deterring special treatment of carriers. However, if States choose to keep the CORSIA Package text as it is, the burden is on them to actively verify other States' emissions reports with the tools and approaches currently laid out in the SARPs.
- **The CORSIA Package must continue make clear that *only* CORSIA Eligible Emissions Units can be used for compliance with CORSIA.** A State must not be able to apply these criteria or some other criteria unilaterally.
- **ICAO should refrain from crediting aviation alternative fuels under CORSIA until the sustainable aviation fuels provisions in the CORSIA Package, particularly the sustainability criteria, are strengthened.**¹⁶ The sustainability criteria—the criteria against which aviation alternative fuels are evaluated to be eligible for credit under CORSIA—must be strengthened to encompass not only emissions reductions of the fuels, but also their social, economic, and other environmental sustainability attributes. Comprehensive, robust sustainability criteria should be included in the final CORSIA Implementation Elements before the CORSIA pilot phase begins on January 1, 2021.
- **States should publicly disclose their responses to the CORSIA Package State Letter.** If a critical mass of States discloses this information, it will encourage greater public confidence in this ICAO State Letter process, including any text changes made by ICAO or the ICAO Council.

¹⁶ According to the CORSIA Package, an aviation alternative fuel is defined as “[a] non-petroleum-based drop-in aviation fuel,” (page A-10). Sustainable aviation fuels are defined as “[an] aviation alternative fuel that meets the CORSIA Sustainability Criteria” (page A-11). ICSA stresses that aviation alternative fuels should not be classified as “sustainable” unless they meet comprehensive and rigorous sustainability criteria.

Table 1 – Summary of All Recommendations

This table provides a summary of all recommendations, which are laid out fully under “Detailed analysis and recommendations on the CORSIA Package” on page 15.

TOPIC		ICSA RECOMMENDATION
1. Processes to translate CORSIA's emissions coverage through State pairs		MAINTAIN No changes recommended.
2. Emissions monitoring, reporting, and verification procedures		ENHANCE Allowing third parties to access aeroplane operator emissions reports would help ensure the environmental integrity of CORSIA and avoid market distortion by deterring special treatment of carriers.
3. Emissions unit quality	Emissions units criteria for selection of CORSIA Eligible Emissions Units	MAINTAIN While ICSA has some concerns about certain aspects of these criteria and notes the need for their continuous elaboration, they are fit for purpose and we recommend no changes to them at this point in time.
	Eligible emissions units under CORSIA	ENHANCE The note under Section 4.2.1 should be duplicated in the document “ICAO CORSIA Implementation Elements, Section 2.4 CORSIA Eligible Emissions Units (page C-15).”
4. Sustainable aviation fuels	Sustainability criteria for aviation alternative fuels	ENHANCE Comprehensive and robust sustainability criteria should be included in the final CORSIA Implementation Elements before the CORSIA pilot phase goes into effect on January 1, 2021, to avoid unsustainable aviation fuel production being encouraged and potentially grandfathered in later phases.
	Structure of the eligibility framework for sustainability certification schemes (SCS)	MAINTAIN The structure of the eligibility framework for SCSs currently captured in the CORSIA Package is the right way forward and should be maintained.
	Default life cycle assessment (LCA) values for sustainable aviation fuels	ENHANCE The underlying life cycle assessment methodology should be maintained. However, some current research suggests that wastes, residues, and by-products, such as PFAD, have indirect emissions associated with them, even though these fuel feedstock categories currently qualify as having zero indirect emissions, including zero ILUC. Therefore, the default LCA values should be revisited by CAEP alternative fuels experts, taking into account the associated indirect emissions, no later than the start of the CORSIA pilot phase (January 1, 2021).
	Actual life cycle assessment (LCA) values for sustainable aviation fuels and the role of sustainability certification schemes (SCS)	ENHANCE Several elements in the text of Section 2.3.2 of the Implementation Elements need to be modified in order to (1) consistently characterize who will apply the methodology within the CORSIA Package, and (2) to ensure that references to ICAO CORSIA Supporting Documents are correct.
5. Procedures for aeroplane operators to register and report their use of emissions units and sustainable aviation fuels	Cancelling CORSIA Eligible Emissions Units for compliance	ENHANCE The text in the note on definition of cancellation under Section 4.2.2 should be changed from a “note” to text and be moved to Part I. Definitions, Abbreviations and Units; Chapter 1.— Definitions (page A-10). The recommendation in Section 4.3.3 should replace the word “publish” with the words “publicly communicate on a webpage and subsequently include this link in their emissions unit cancellation report to ICAO, as defined in Appendix 5 Table A5-8, using an ICAO approved form” when describing the elements for States to publish.
	Ensuring that emission reductions are not counted twice	MAINTAIN No changes recommended at this time. However, it will be paramount that ICAO strictly adhere to the “Avoidance of Double Counting, Issuance and Claiming” criterion as it evaluates offset programs.
	Monitoring, reporting, and verification (MRV) of sustainable aviation fuels	ENHANCE The current MRV system for sustainable aviation fuels is not well-equipped to address high volumes of alternative fuels. Additional MRV procedures, need to be developed in order to avoid double claiming of SAF and ensure the environmental integrity of CORSIA.

Detailed analysis and recommendations on the CORSIA Package

1. Processes to translate CORSIA's emissions coverage through state pairs

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 3 (page A-26)
- ICAO CORSIA Implementation Elements, Section 2.1 CORSIA States for Chapter 3 State Pairs (page C-7)
- ICAO CORSIA Supporting Documents, Section 3.1 CORSIA States for Chapter 3 State Pairs (page C-21 to C-22)

Explanation:

The ICAO document “CORSIA States for Chapter 3 State Pairs” defines State pairs and the offsetting requirements that States participating in CORSIA must meet.¹⁷ As with all other Implementation Elements in the CORSIA Package, it will be published on the ICAO CORSIA website. This is critical information required by aeroplane operators to determine the applicability scope of the CORSIA CO₂ offsetting requirements. According to the ICAO CORSIA Supporting Documents, Section 3.1, “States shall inform ICAO on whether they wish to volunteer to participate in the CORSIA during 2021 by **30 June 2020**. These States will define the State pairs with offsetting requirements for 2021 and, following approval by ICAO Council, the information on these States will be made public on this ICAO website by **1 August 2020**.”

Why this matters:

All States and aeroplane operators that have international flights will have reporting obligations under CORSIA. However, the scope of international aviation emissions included in CORSIA are defined as the State pair routes between countries participating in CORSIA. Participation in the first two phases of CORSIA (2021-2023 and 2024-2026) by States is voluntary, while participation by most States is required in the mandatory phase (2027-2035). As of the publication of this document, the estimated international aviation CO₂ emissions coverage achieved by CORSIA is 78 percent.¹⁸ As more countries volunteer, the coverage of CORSIA—and thus its environmental effectiveness—increases, and the risk of market distortion decreases.

ICSA recommendation: **MAINTAIN**

No changes are recommended to the CORSIA Package on this element.

¹⁷ According to the CORSIA Package, a state pair is “a group of two Contracting States composed of a departing Contracting State or its territories and an arrival Contracting State or its territories” (page A-11). A Contracting State of ICAO is a State which has adhered to the Chicago Convention on International Civil Aviation. There are 192 Contracting States.

¹⁸ See “ICAO’s market-based measure,” *Environmental Defense Fund* (EDF), 2018, <https://www.edf.org/climate/icaos-market-based-measure>.

2. Emissions monitoring, reporting, and verification procedures

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 2 (A-17). Notable components under Chapter 2 include:
 - Section 2.1 Applicability of MRV requirements
 - Section 2.2 Monitoring of CO₂ emissions
 - Section 2.3.2 State Reporting (A-20 to A-22)
 - Section 2.4.1.6 under Verification of Emissions (A-22)
 - Section 2.4.1.9 under Verification of Emissions (A-23)
- ICAO Implementation Elements, Section 2.5 CORSIA Central Registry (CCR)
- ICAO Document, “CORSIA Central Registry (CCR): Information and Data Needed to Implement CORSIA” and “CORSIA Central Registry (CCR): Information and Data for the Purpose of Transparency”
- Appendix 1: Administration Procedures
- Appendix 2: Fuel Use Monitoring Methods
- Appendix 3: CO₂ Emissions Estimation and Reporting Methods and Tools
- Appendix 4: Emissions Monitoring Plan
- Appendix 5: Reporting

Explanation:

All aeroplane operators that produce annual CO₂ emissions greater than 10,000 tonnes from the use of an aeroplane(s) with a maximum certificated take-off mass greater than 5,700 kg conducting international flights—with some exceptions for humanitarian, medical, and firefighting flights—must monitor, verify, and report their emissions for the CORSIA (see Sections 2.1.1 and 2.1.3). Even aeroplane operators without offsetting obligations outlined under Chapter 3 of the SARPs must follow these steps.

Each aeroplane operator must monitor its fuel use using one of the methods provided in Appendix 2 and “shall submit an Emissions Monitoring Plan to the State to which it is attributed for approval by the State in accordance with the timeline as defined in Appendix 1. The Emission Monitoring Plan shall contain the information as defined in Appendix 4” (page A-19). Aeroplane operators that, on an individual level, have negligible international aviation CO₂ emissions of 50,000 tonnes per annum or less, may choose to use a fuel use monitoring method in Appendix 2 or the CO₂ Estimation and Reporting Tool (CERT) referenced in Appendix 3. Aeroplane operators and States will use the reporting forms in Appendix 5. The emissions data will undergo greater amounts of aggregation as it passes from aeroplane operator to State to ICAO. “All aeroplane operator data which is deemed confidential in accordance with 2.3.1.6 and 2.3.1.7 shall be aggregated without attribution to the specific aeroplane operator, and published in the ICAO document entitled, ‘CORSIA Central Registry (CCR): Information and Data for Transparency’ that is available on the ICAO CORSIA website” (page A-21).

Objectively, allowing third parties to access aeroplane operators’ emissions reports would help ensure the environmental integrity of CORSIA and avoid market distortion by deterring special treatment of carriers.

Why this matters:

Transparency is essential in helping States and the public to determine whether operators, other States, offset programs, third party verifiers, and ICAO are complying with the requirements and following best practice.

While emissions monitoring and reporting will be the first steps States and aeroplane operators will take according to the SARPs compliance periods and timelines (Appendix 1. Administration Procedures, pages A-32 to A-46), the transparency of offset programs' administrative procedures (see page 18 of this document), offset cancellations (see page 30 of this document) and sustainable aviation fuels claims (see page 31 of this document) are also just as critical to CORSIA.

CORSIA reporting as proposed in the CORSIA Package is not sufficiently transparent. As information flows from aeroplane operators to States to ICAO to the ICAO CORSIA Central Registry, it becomes more aggregated and loses associated identifiers. According to Section 2.4, States are able to approach other States, and with the other State's approval, perform order of magnitude checks on "specific data and information contained in [an] aeroplane operator's Emissions Report for aeroplane operators performing flights to and from the requesting State" (page A-22).

ICSA recommendation: **ENHANCE**

ICSA has previously called for greater transparency on reporting emissions in CORSIA than is reflected in the CORSIA Package.¹⁹ As CORSIA depends on States to ensure that operators implement so the State can meet its requirements under the CORSIA Package, it is essential that there is an appropriate level of transparency to determine whether CORSIA is operating effectively. Objectively, allowing third parties to access aeroplane operators' emissions reports would help ensure the environmental integrity of CORSIA and avoid market distortion by deterring special treatment of carriers. However, if States choose to keep the CORSIA Package text remains as it is, the burden is on the States themselves to actively verify other States' emissions reports with the tools and approaches currently laid out in the SARPs.

¹⁹ "Trust but Verify Aviation's Climate Deal: CORSIA Registries and Transparency," *International Coalition for Sustainable Aviation*, 2016, <http://icsa-aviation.org/wp-content/uploads/2017/05/ICSA-Registries-Paper-FINAL-1.pdf>.

3. Emissions unit quality

Overview

Since 2013, technical experts in ICAO's Committee for Aviation Environmental Protection (CAEP) have been developing the emissions unit criteria (EUC) that would be the basis for screening out offsets that have low or no environmental or social benefits. The criteria are overall rather comprehensive, but there will be need for continuous work to align and elaborate CORSIA rules to be in line with other market developments and international climate policy, most crucially the Paris Agreement. A first iteration of the criteria is complete, notwithstanding the need for further development on social safeguards and stakeholder participation. Now that the criteria are complete, the Technical Advisory Body (TAB), which was requested by the 39th Assembly, must use the criteria to screen offsets and make recommendations on eligible emissions units to the ICAO Council for approval. In addition, the SARPs must continue to make clear that only units identified by the TAB and subsequently approved by the Council to be CORSIA Emissions Eligible Emissions Units—i.e. those units that can be used for compliance with CORSIA. A State may not apply the criteria unilaterally. And strong conflict-of-interest standards will need to be put in place to give the public the confidence that neither the members of the TAB nor the members of the Council have financial or other interests that could raise the appearance of partiality in assessing the eligibility of the programs and units.

Emissions unit criteria for selection of CORSIA Eligible Emissions Units

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 4, Section 4.2.1 (page A-30)
- ICAO CORSIA Implementation Elements, Section 2.4.2 CORSIA Emissions Unit Eligibility Criteria (page C-15 to C-18)
- ICAO CORSIA Supporting Documents, Section 3.4 CORSIA Eligible Emissions Units (page C - 25)

Explanation:

The CORSIA Emissions Unit Eligibility Criteria were developed between 2013 and 2017 by technical experts in CAEP. If applied correctly, they would limit eligible offset programs and project types to those with the highest environmental integrity. While this does not resolve important questions of compatibility with other markets and policy frameworks, it is a first, necessary step for a functioning market measure. The CORSIA Emissions Unit Eligibility Criteria are referenced in the SARP under Chapter 4.2.1; however, the criteria themselves are listed in full under ICAO CORSIA Implementation Elements, 2.4.2. The criteria apply to *offset credits from approved programs*. (ICAO's technical bodies have not yet addressed the issue of emissions unit criteria for allowances from emissions trading systems.) Aeroplane operators will only be able to apply offset credits to their CORSIA offsetting obligation from programs that meet the CORSIA Emissions Unit Eligibility Criteria. The criteria are divided into two sections: (1) design elements that the program must have (e.g. program governance and a safeguards system) and (2) integrity criteria

The [CORSIA Emissions Unit Eligibility Criteria] are overall rather comprehensive, but there will be need for continuous work to align and elaborate CORSIA rules to be in line with other market developments and international climate policy, most crucially the Paris Agreement.

for the program's offset projects (e.g. additionality, permanence, counting emissions once towards a mitigation obligation, etc.).

The criteria should apply at the program level—meaning, all offset credits within the scope of a program must meet the CORSIA Emissions Unit Eligibility Criteria. However, discretion is given to the TAB that would apply these criteria to evaluate at the project-level, if needed.²⁰

Why this matters:

A large literature base shows that if not executed properly, offset projects can have little or no environmental or social benefit and in some cases, have negative impacts. Without strong emissions unit eligibility criteria and strong application thereof, CORSIA's entire credibility (along with the credibility of ICAO and aeroplane operators) should be called into question. On the other hand, strong criteria will likely boost the credibility of CORSIA and carbon markets more generally. That the TAB is given the discretion to evaluate emissions units at the project-level is an important provision. Some offset programs might have a mix of emissions units that would be eligible and ineligible based on the CORSIA Emissions Unit Criteria. Being able to weed out certain ineligible projects would allow the TAB to recommend offset programs to be eligible under CORSIA that would otherwise be disqualified.

ICSA recommendation: MAINTAIN

The text of the eligibility criteria has been carefully crafted and scrutinized by technical experts from governments, the aviation industry, and NGOs. While ICSA has some concerns about certain aspects of these criteria (e.g. CORSIA does not recommend that safeguards systems be built off best-in-class approaches like the International Finance Corporation's (IFC) Environmental and Social Performance Standards), and notes the need for their continuous elaboration (e.g. unfinished rules to ensure avoidance of double counting, ensure proper stakeholder participation, and operationalization of social criteria), they are fit for purpose and we recommend no changes to them at this point in time.

Eligible emissions units under CORSIA

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 4, Section 4.2.1 (page A-30)
- ICAO CORSIA Implementation Elements, Section 2.4 CORSIA Eligible Emissions Units (page C-15)
- ICAO CORSIA Supporting Documents, Section 3.4 CORSIA Eligible Emissions Units (page C-25)

²⁰ ICAO Assembly Resolution A39-3 requests "the Council to establish, with the technical contribution of CAEP, a standing technical advisory body on the Emissions Unit Criteria (EUC) to make recommendations to the Council on the eligible emissions units for use by the CORSIA." *Resolution A39-3: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Global Market-based Measure (MBM) scheme*, ICAO 39th Assembly (October 2016), https://www.icao.int/environmental-protection/Documents/Resolution_A39_3.pdf.

Explanation:

The SARPs text clearly communicates in Section 4.2.1 that *only* CORSIA Eligible Emissions Units are eligible to count toward an aeroplane operator's offsetting obligations. A note under Section 4.2.1 explains the officially agreed ICAO decision-making processes for determining CORSIA Eligible Emissions Units and CORSIA Emissions Unit Eligibility Criteria. This text under Section 4.2.1 explicitly references the Implementation Elements, which provides a placeholder for CORSIA Eligible Emissions Units once they are agreed. Supporting Documentation under Section 3.4 CORSIA Eligible Emissions Units describes in more detail how ICAO will follow the 2016 ICAO Assembly Resolution to set up a technical advisory body, which will apply the CORSIA Emissions Unit Eligibility Criteria (see ICAO CORSIA Implementation Elements, Section 3.4.2).

Why this matters:

The final CORSIA Package must clearly state that only CORSIA Eligible Emissions Units meeting the CORSIA Emissions Unit Eligibility Criteria will be accepted. If it does not, countries may be tempted to apply them in their own way, which would make it costlier for aeroplane operators to deal with the patchwork of approaches and risks undermining the integrity of the overall program.

ICSA recommendation: ENHANCE

The note under Section 4.2.1 should be duplicated in the document ICAO CORSIA Implementation Elements, Section 2.4 CORSIA Eligible Emissions Units (page C-15). This is important for two key reasons:

- The status of processes for determining the CORSIA Eligible Emissions Units and CORSIA Emissions Unit Eligibility Criteria should be transparently and publicly communicated to all carbon market actors for CORSIA to operate most efficiently.
- Having this text in the ICAO CORSIA Implementation Elements would underscore that, in implementing the SARPs, Member States are not to apply the CORSIA Emissions Unit Eligibility Criteria unilaterally. It is the Technical Advisory Body and, ultimately, the ICAO Council that will decide on CORSIA Eligible Emissions Units.

The final CORSIA Package must clearly state that *only* CORSIA Eligible Emissions Units meeting the CORSIA Emissions Unit Eligibility Criteria will be accepted.

4. Sustainable aviation fuels

Overview

Under CORSIA, sustainable aviation fuels (SAF) can be used to reduce aeroplane operators' emissions and thus offsetting obligations. Sustainable aviation fuels are defined as non-petroleum, drop-in aviation fuels that meet the CORSIA sustainability criteria.²¹ In addition to meeting sustainability criteria, SAF must also (1) be certified by an ICAO-approved sustainability certification scheme (SCS) according to ICAO requirements, and (2) have an associated life cycle emissions value (LSf) calculated to qualify for credit under CORSIA. The CORSIA Package describes these elements in detail.

Even while there are some appropriate elements in the Package, ICAO should refrain from crediting sustainable aviation fuels under CORSIA until the relevant provisions in the CORSIA Package are strengthened. While the envisioned eligibility framework to evaluate SCSs appears to be sufficiently comprehensive (even as it is still under development), and the underlying methodology for calculating life cycle emissions is sound, the sustainability criteria for aviation alternative fuels, contained in the Implementation Elements, are insufficient and must be revised to include robust social, environmental, and economic sustainability criteria. If they are not appropriately revised, any aeroplane operator could receive credit under CORSIA for aviation alternative fuels that were produced in violation of human rights and without sound environmental protection safeguards. Otherwise, the aviation alternative fuels could not be claimed as sustainable since fuel producers would not be requested to respect any requirements to protect the environment nor any fundamental human rights. These elements were agreed upon by CAEP and recommended to the ICAO Council, but the ICAO Council could not find an agreement on most of the sustainability criteria due the reticence of a small number of countries that had otherwise helped shape and supported the sustainability criteria at the CAEP level.²² Unless these elements are fully brought back, the eligibility criteria to accept sustainable aviation fuels under CORSIA are critically insufficient.

Sustainability criteria for aviation alternative fuels

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 2, Section 2.2.4 (page A-20)
- Implementation Elements, Section 2.3.2.2 (page C-11)

Explanation:

Chapter 2, Section 2.2.4 of the SARP identifies what kind of sustainable aviation fuels aeroplane operators must use in order to claim emissions reductions under CORSIA.

²¹ See the definitions of aviation alternative fuels and sustainable aviation fuels on pages A-10 and A-11. ICSA stresses that aviation alternative fuels should not be classified as "sustainable" unless they meet comprehensive and rigorous sustainability criteria.

²² Media reports accounts indicate that Brazil led the charge against having comprehensive sustainability criteria. See Tor Sandberg, "Lowering biofuels requirements," *Dagsavisen*, November 2017, <http://www.dagsavisen.no/innenriks/senker-krav-til-biodrivstoff-1.1060033>.

Section 2.2.4.1 states that aeroplane operators “shall use a sustainable aviation fuel that meets the CORSIA Sustainability Criteria as defined within the ICAO document entitled, ‘CORSIA Sustainability Criteria for Sustainable Aviation Fuels’ that is available on the ICAO CORSIA website” (page A-20). According to Section 2.2.4.3, “If the aeroplane operator cannot demonstrate the compliance of the sustainable aviation fuel with the CORSIA Sustainability Criteria, then it shall be accounted for as conventional aviation fuel” (page A-20). Thus, the aeroplane operator would not receive an emissions reduction credit against its CORSIA obligation.

However, **the draft sustainability criteria are far from sufficient.** According to these criteria, found in Section 2.3.2.2 of the Implementation Elements, sustainable aviation fuels (1) “shall achieve net greenhouse gas emissions reductions of at least 10 percent compared to fossil jet fuel on a life cycle basis,” and (2) “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 primary forests, wetlands, or peat lands as these lands all have high carbon stocks” (page C-11). While these two criteria are very important from an emissions reduction standpoint, additional criteria are needed to ensure the fuels are environmentally, socially, and economically sustainable.

Why this matters:

CORSIA needs to have robust sustainability criteria for aviation alternative fuels in order to be a credible system. Without them, **there is no way to ensure that production of alternative fuels avoids competition with food and water resources or upholds fundamental human rights, contradicting ICAO’s own commitment to contribute to social and economic development, as stated in ICAO Assembly Resolution A39-2.**²³ ICAO, as a United Nations agency, has committed to contribute to Sustainable Development Goals (SDGs). Under the proposed framework, it cannot be guaranteed that sustainable aviation fuels will not be against the SDGs.

Some would argue that CORSIA can start with minimal sustainability criteria and tighten the stringency over time. However, previous biofuel policy challenges, particularly in the European Union, have demonstrated the need to set up sustainability standards correctly from the start to ensure environmental integrity. Setting up proper sustainability criteria from the start allows fuel producers to properly design their operations to meet a high standard that will be less likely to change, thus avoiding having stranded assets. Further, if the proper sustainability criteria are not set up from the start, there is a risk that fuels with low environmental quality would be grandfathered into later periods of the scheme, even after the sustainability criteria have become more robust.

Comprehensive and robust sustainability criteria should be included in the final CORSIA Implementation Elements before the CORSIA pilot phase goes into effect on January 1, 2021...

²³ In paragraph 18, the ICAO Assembly requests States to “(i) recognize existing approaches to assess the sustainability of all alternative fuels in general, including those for use in aviation which should achieve net GHG emissions reduction on a life cycle basis, contribute to local social and economic development; competition with food and water should be avoided” (page 7). *Resolution A39-2: Consolidated statement of continuing ICAO policies and practices related to environmental protection – Climate change*, ICAO 39th Assembly (October 2016). https://www.icao.int/environmental-protection/Documents/Resolution_A39_2.pdf.

The adoption of such a comprehensive list will also guarantee a minimum degree of international harmonization to avoid market distortions and unfair competition—among aeroplane operators and among fuel producers—to avoid having a patchwork of regulations that would eventually limit the international acceptance of sustainable aviation fuels across jurisdictions.

ICSA recommendation: ENHANCE

In their comments on the CORSIA Implementation Elements, Member States should write that sustainability criteria must be expanded to include additional environmental criteria, as well as economic and social sustainability attributes. The current sustainability criteria narrowly focus on emissions reductions, which are essential, but the absence of the sustainability criteria could lead to unintended negative impacts on countries' development and their ability to achieve the UN Sustainable Development Goals. This would put aeroplane operators' reputations at risk as well. **Comprehensive and robust sustainability criteria should be included in the final CORSIA Implementation Elements before the CORSIA pilot phase goes into effect on January 1, 2021, to avoid unsustainable aviation fuel production being encouraged and potentially grandfathered in later phases.**

Structure of the eligibility framework for sustainability certification schemes (SCS)

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 2, Section 2.2.4.2 (page A-20)
- ICAO CORSIA Implementation Elements, 2.3 CORSIA Sustainable Aviation Fuels, (pages C-9 to C-14)
- ICAO Document, "CORSIA Eligibility Framework and Requirements for Sustainability Certification Schemes" (referenced on page C-9)
- ICAO Document, "CORSIA Approved Sustainability Certification Schemes" (referenced on page C-9)
- ICAO Document, 4.3.1 CORSIA Sustainable Aviation Fuels: Information on Sustainability Certification Schemes (SCS) (page C-29)

Explanation:

Sustainability certification schemes (SCSs) are critical to the proper functioning of CORSIA, as they will be tasked with certifying that alternative fuels are sustainable and thus can be used for compliance under CORSIA. Section 2.2.4.2 of the SARPs states: "The aeroplane operator that intends to claim for emissions reductions from the use of sustainable aviation fuels **shall only use sustainable aviation fuels from fuel producers that are certified by an approved Sustainable Certification Scheme** included in the ICAO document entitled, 'CORSIA Approved Sustainability Certification Schemes' which meet the requirements included in the ICAO document entitled 'CORSIA

Eligibility Framework and Requirements for Sustainability Certification Schemes' that are available on the ICAO CORSIA website" (page A-20).

According to 2.3.1 CORSIA Sustainable Aviation Fuels: Information on Sustainability Certification Schemes, the eligibility framework that ICAO is developing will evaluate SCSs according to their compliance with "the CORSIA sustainability criteria, audit quality and scheme governance system, traceability requirements, and transmission of information" (page C-9). Once SCSs are approved as meeting ICAO's eligibility requirements, they will appear in the ICAO CORSIA Document, "CORSIA Approved Sustainability Certification Schemes," and aeroplane operators will select an SCS from this list.

Why this matters:

It is essential that CORSIA have a proper eligibility framework in place so that only legitimate SCSs are able to certify sustainable aviation fuels and verify actual life cycle assessment values (as discussed in the section "Actual life cycle assessment (LCA) values for sustainable aviation fuels and the role of sustainability certification schemes (SCSs)"). Absent a proper eligibility framework, weak SCSs that have issues with their governance structure or audit quality would be able to certify fuel producers and other economic operator along the supply chain. This could make CORSIA prone to problems in applying the sustainability criteria, allowing aeroplane operators to use fuels that do not qualify under CORSIA and wrongly claim emissions reductions from those fuels under the scheme.

ICSA recommendation: MAINTAIN

SCSs will be integral to CORSIA functioning properly, so it is critical that SCSs are assessed and only legitimate schemes can certify sustainable aviation fuels for use in CORSIA. The structure of the eligibility framework for SCSs currently captured in the CORSIA Package is the right way forward and should be maintained.

Default life cycle assessment (LCA) values for sustainable aviation fuels

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 3, Section 3.3.2 (A-28)
- ICAO CORSIA Implementation Elements, Section 2.3.2.3 (C-12)
- ICAO CORSIA Supporting Document, "CORSIA Default Life Cycle Emissions Values for Sustainable Aviation Fuels"

Explanation:

Aeroplane operators must account for the life cycle emissions of the sustainable aviation fuels used to meet their obligations under CORSIA. They may choose to use a default core LCA value, approved by ICAO, or an "actual" LCA value (discussed in the next section on page 25 of this guide). The LCA values provided in the CORSIA Implementation

Elements 2.3.2.3 are broken out into two components, the core LCA value incorporating the direct emissions from fuel production, processing and distribution, and the ILUC value attributed to the market-mediated effects of fuel demand on land use. According to Section 3.3.2 of the SARP, “If a Default Life Cycle Emissions value is used, then the aeroplane operator shall use the ICAO document entitled ‘CORSIA Default Life Cycle Emissions Values for Sustainable Aviation Fuels’ that is available on the ICAO CORSIA website for the calculation in 3.3.1” (page A-28). A table of the default LCA values is contained in the ICAO CORSIA Implementation Elements in Section 2.3.2.3 (page C-12).

Why this matters:

Aeroplane operators will use the table of default LCA values to calculate the lifecycle emissions of their sustainable aviation fuel use and receive credit for emissions reductions. The methodology underpinning the default LCA values is generally sound as it takes into account the life cycle emissions of the fuel, including induced land use change (ILUC). However, the analysis for fuel feedstocks derived from wastes, residues, and by-products falls short as it does not account for the full lifecycle emissions associated with those fuel feedstocks. The analysis excludes the indirect emissions attributable to the displacement caused by those materials’ diversion from their previously existing uses.

Take, for example, the case of palm fatty acid distillate (PFAD). PFAD is currently used in the soap and oleochemical markets. If demand for PFAD in the aviation alternative fuel market were to increase and the price of PFAD were to rise, it is reasonably expected that PFAD in soap and oleochemical markets would likely be substituted with palm oil, or potentially other vegetable oils. The additional materials requirement and land use change associated with increased palm oil production would result in significant emissions.²⁴ Similarly, the indirect emissions associated with fuels derived from other wastes, residues, and by-products should not be considered to be zero. In addition, some wastes and residues can also have indirect effects, as long as the sustainability criteria for aviation alternative fuels remain incomplete.

ICSA recommendation: ENHANCE

The underlying life cycle assessment methodology should be maintained. However, some current research suggests that wastes, residues, and by-products, such as PFAD, have indirect emissions associated with them, even though these fuel feedstock categories currently qualify as having zero indirect emissions, including zero ILUC. Therefore, the default LCA values in the should be revisited by CAEP alternative fuels experts, taking into account the associated indirect emissions, no later than the start of the CORSIA pilot phase (January 1, 2021).

²⁴ Chris Malins, “Waste not want not Understanding the greenhouse gas implications of diverting waste and residual materials to biofuel production,” *Cerulogy and the International Council on Clean Transportation*, 2017, https://www.theicct.org/sites/default/files/publications/Waste-not-want-not_Cerulogy-Consultant-Report_August2017_vF.pdf.

Actual life cycle assessment (LCA) values for sustainable aviation fuels and the role of sustainability certification schemes (SCSs)

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 3, Section 3.3.3 (page A-28)
- ICAO CORSIA Implementation Elements, Section 2.3.2 CORSIA Sustainable Aviation Fuels: Information for Certification of Sustainable Aviation Fuels (pages C-10 to C-14)
- ICAO CORSIA Supporting Document, “CORSIA Methodology for Calculating Actual Life Cycle Emissions Values”

Explanation:

As discussed in the previous section, aeroplane operators must account for the life cycle emissions of the sustainable aviation fuels used under CORSIA, and they may choose to use a default LCA value that is approved by ICAO (as discussed in the previous section of this guide, “Default life cycle assessment (LCA) values for sustainable aviation fuels”), or they may choose to use an “actual” LCA value. If fuel producers can demonstrate better life cycle emissions overall than a default value, then they may choose to calculate the LCA value themselves, thus generating an actual LCA value. According to Section 3.3.3 of the SARP, “If an Actual Life Cycle Emissions value is used, then an approved Sustainability Certification Scheme shall ensure that the methodology, as defined in the ICAO document entitled ‘CORSIA Methodology for Calculating Actual Life Cycle Emissions Values’ that is available on the ICAO CORSIA website, has been applied correctly” (page A-28). Importantly, fuel producers calculate the actual LCA value, and SCSs ensure that fuel producers have applied the ICAO methodology correctly.

There are several elements to the actual LCA value methodology, detailed in Section 2.3.2.4 of the Implementation Elements (pages C-12 to C-14), and SCSs will play an important role by verifying that fuel producers have applied the methodology correctly. Paragraph 1 describes the process of aeroplane operators selecting approved SCSs to verifying that the methodology has been used properly, and paragraphs 3 to 7 describe the general LCA methodology and system boundary of the analysis. According to paragraph 2, typically the actual core LCA value is added to an induced land use change (ILUC) value to calculate the final actual life cycle emissions value (LSf).

However, there are some exceptions to this general application of the methodology. In some cases, fuel producers may receive a zero rating for ILUC based on the fuel feedstock and land management practices. Paragraph 2 states: “If a fuel was produced from a feedstock that is defined as a waste, residue, or by-product [...] then the actual core LCA value shall be the total LSf” (pages C-12 to C-13). In addition to wastes, residues, and by-products, “feedstocks that do not result in expansion of global agricultural land use for their production” and “feedstocks that have yields per surface unit significantly higher than terrestrial crops (~ one order of magnitude higher) such as some algal feedstocks” also receive a zero ILUC value (Paragraph 9, page C-13). In addition, aeroplane operators may choose to use land management practices to mitigate the

impact of land use change and receive a zero ILUC value, as described in Paragraphs 10 and 11 (pages C-13 to C-14).

Why this matters:

The methodology for fuel producers to calculate actual LCA values is largely satisfactory, and ICAO has correctly decided that SCSs should validate that fuel producers have applied the methodology correctly. This approach should be maintained. However, fuel producers could still game the certification system and have their fuel qualify for a zero-ILUC value, even though the fuel's actual emission impacts from ILUC would probably be higher. Future technical work on alternative fuels should precisely and stringently define feedstock categories and the rules for getting credit for implementing low LUC land management practices. This technical work should be reflected in the ICAO CORSIA Supporting Documents before the CORSIA pilot phase begins on January 1, 2021.

ICSA recommendation: ENHANCE

The substance of the actual LCA methodology is generally acceptable and should be maintained. ICAO should take care in finalizing the ICAO CORSIA Supporting Documents related to the feedstock categories and low LUC risk land management practices to ensure that the LCA methodology captures the full life cycle emissions of the sustainable aviation fuels.

However, there are several elements in the text of Section 2.3.2 of the Implementation Elements that need to be modified in order to (1) consistently characterize who will apply the methodology within the CORSIA Package, and (2) to ensure that references to ICAO CORSIA Supporting Documents are correct.

First, according to Section 3.3.3 of the SARP, ICAO has taken the approach that fuel producers calculate actual LCA values according to the CORSIA methodology and that SCSs verify that this methodology was correctly applied. However, Section 2.3.2 states that SCS "can calculate actual life cycle emissions values using the agreed methodology, if default life cycle values are not applied" (page C-10). **Section 2.3.2 should be changed to be consistent with Section 3.3.3 of the SARP, such that SCSs will not perform actual life cycle emissions calculations themselves, but rather ensure that the methodology has been used properly.**

Second, ICSA notes that many of the references in Section 2.3.2.4 of the Implementation Elements (pages C-12 to C-14) are inconsistent with the numbering of sections contained on page C-14. **The numbering in Section 2.3.2.4 should be corrected in the final version of the CORSIA Package to eliminate confusion,** as detailed below.

- In paragraph 1, the following changes should be made:
 - On line 4, the reference to Section 2.3.2.2 should be corrected to **2.3.2.3**;
 - On line 7, the reference to Section 2.3.1.1 should be corrected to **2.3.1.2**; and
 - On line 9, the reference to Section 2.3.2.2 should be corrected to **2.3.2.3**.

- In paragraph 2, the following changes should be made:
 - On line 2, the reference to Section 2.3.2.5 should be corrected to **2.3.2.6**;
 - On line 4, the reference to Section 2.3.2.2 should be corrected to **2.3.2.3**;
 - On line 5, the reference to Section 2.3.2.2 should be corrected to **2.3.2.3**; and
 - On line 5, the reference to Section 2.3.2.6 should be corrected to **2.3.2.7**.
- In paragraph 8, the following changes should be made:
 - On line 3, the reference to Section 2.3.2.5 should be corrected to **2.3.2.6**.
- In paragraph 9, the following changes should be made:
 - On line 4, the reference to Section 2.3.2.5 should be corrected to **2.3.2.6**; and
 - On line 7, the reference to Section 2.3.2.2 should be corrected to **2.3.2.3**.
- In paragraph 10, the following changes should be made:
 - On line 3, the reference to Section 2.3.1.1 should be corrected to **2.3.1.2**;
 - On line 5, the reference to Section 2.3.2.7 should be corrected to **2.3.2.8**; and
 - On line 9, the reference to Section 2.3.2.7 should be corrected to **2.3.2.8**.
- In paragraph 12, the following changes should be made:
 - On line 8, the reference to Section 2.3.2.8 should be corrected to **2.3.2.9**.

5. Procedures for aeroplane operators to register and report their use of emissions units and sustainable aviation fuels

Cancelling CORSIA Eligible Emissions Units for compliance

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 4 (pages A-30 to A-31)
- SARPs Annex 16, Volume IV, Appendix 1. Administrative Procedures, 2. Compliance Periods and Timelines (page A-32 to A-47)
- SARPs Annex 16, Volume IV, Appendix 5: Reporting, Table A5-7 (page A-67) and Table A5-8 (page A-67 to A-69)

Explanation:

Chapter 4 of the SARPs indicates which emissions units are eligible for cancellation, how cancellation must take place, how reporting of these cancellations must take place, and how these cancellations must be verified. One note in the SARPs under Section 4.2.1 indicates which emissions are eligible. Another note after Section 4.2.2 states that “‘Cancel’ means the permanent removal and single use of a CORSIA Eligible Emissions Unit within a CORSIA Eligible Emissions Unit Program designated registry such that the same emissions unit may not be used more than once. This is sometimes also referred to as ‘retirement,’ ‘cancelled,’ ‘cancelling’ or ‘cancellation.’” Under Section 4.3.1, the SARPs states that AOs shall report the cancellation of eligible emissions units to the States. Section 4.3.3 contains a recommendation for States to publish information for each compliance period, after it is submitted to ICAO. This information includes: “a) Total final offsetting requirements over the compliance period for each aeroplane operator attributed to the State; and b) Total quantity of emissions units cancelled over the compliance period by each aeroplane operator to reconcile the total final offsetting requirements, as reported by each aeroplane operator attributed to the State.” Finally, in 4.4 the SARPs set out requirements for countries and aeroplane operators to verify their emissions unit cancellations.

Why this matters:

Cancellation is critical to ensure that each emissions unit is counted once against a mitigation obligation. Without proper cancellation of emissions units, double use of emissions units could occur, which could severely undermine CORSIA’s effectiveness. As the reporting procedures in Section 4.3.1 are currently formulated, States and ICAO would not necessarily be able to tell when emissions units have been cancelled and would not be able to compare this against the aeroplane operators’ offsetting requirements. It will be only in the CORSIA Eligible Emissions Unit Program registries that this information would be available. This information allows for verification of compliance and like other market-based measures should have necessary elements available for public access to promote transparency and trust.

Without proper cancellation of emissions units, double use of the emissions units could occur, which could severely undermine CORSIA’s effectiveness.

ICSA recommendation: ENHANCE

- The text in the note on definition of cancellation under Section 4.2.2 should be changed from a “note” to text and be moved to Part I. Definitions, Abbreviations and Units; Chapter 1. —Definitions (page A - 10). Converting this note to a definitions section would make good organizational sense and underscore that it effectively has the same legal status as other definitions.
- The recommendation in Section 4.3.3 should replace the word “publish” with the words “publicly communicate on a webpage and subsequently include this link in their emissions unit cancellation report to ICAO, as defined in Appendix 5, Table A5-8, using an ICAO approved form” when describing the elements for States to publish. Publish may not always be interpreted as making something publicly accessible. Including the web link to the emissions unit cancellation report would reduce administrative burden for ICAO and contribute to the operational health of CORSIA and carbon markets globally. States should recommend that ICAO, in turn, publicly communicate these links by including them in the ICAO Document, “CORSIA Central Registry: Information and Data for Transparency.”

Ensuring that emission reductions are not counted twice

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 4 (pages A- 30 to A-31)
- SARPs Annex 16, Volume IV, Appendix 1. Administrative Procedures, 2. Compliance Periods and Timelines (page A-32 to A-47)
- SARPs Annex 16, Volume IV, Appendix 5: Reporting, Table A5-7 (page A-67) and Table A5-8 (page A-67 to A-69)

Explanation:

The CORSIA Emissions Units Criteria include requirements that eligible offset programs should require and demonstrate that host countries of emissions reduction activities agree to account for any offset units issued as a result of those activities such that double claiming does not occur between the aeroplane operator and the host country of the emissions reduction activity. The Criteria explain that double claiming occurs when the same emissions reduction is counted twice by both the buyer and the seller (i.e., counted towards the climate change mitigation effort of both an aeroplane operator and the host country of the emissions reduction activity).

Why this Matters:

If an aeroplane operator uses certain emission reductions to satisfy its CORSIA obligations, and those same reductions are also being counted by the host country as the host country reports its progress toward meeting the goals of the Paris Agreement or other mitigation pledges and commitments (e.g., Cancun commitments), that is double claiming. Two different entities—the aeroplane operator and the host country— are claiming they have

reduced emissions, but the atmosphere “sees” only one reduction. To maintain the integrity of global efforts to mitigate climate change, double claiming must be avoided.

ICSA recommendation: MAINTAIN

At this time, ICSA does not recommend a specific text change to the CORSIA Package. However, it will be paramount that ICAO strictly adheres to the “Avoidance of Double Counting, Issuance and Claiming” criterion as it evaluates offset programs. The best way to prevent double claiming would be to require offset programs to demonstrate that host countries are accounting for emissions unit transfers by adding into their national emissions account balances a corresponding amount of emissions for each ton of reductions transferred to CORSIA.

Monitoring, reporting, and verification (MRV) of sustainable aviation fuels

Critical reference points in the CORSIA Package:

- SARPs Annex 16, Volume IV, Chapter 2, Section 2.2.4 Monitoring of Sustainable Aviation Fuels Claims (page A-20)
- SARPs Annex 16, Volume IV, Chapter 2, Section 2.3.3 Reporting of Sustainable Aviation Fuels (page A-21 to A-22)
- SARPs Annex 16, Volume IV, Chapter 2, Section 2.4.3 Verification of Sustainable Aviation Fuels (page A-23 to A-24)
- SARPs Annex 16, Volume IV, Appendix 5. Reporting (A-61 to A-69)
- ICAO Document, “CORSIA Central Registry (CCR): Information and Data for Transparency”

Explanation:

The procedures for monitoring, reporting, and verifying the use of sustainable aviation fuel are key implementing features of CORSIA. As previously stated in this report, in order to qualify under CORSIA, sustainable aviation fuels must meet CORSIA sustainability criteria, and must be certified by an approved sustainability certification scheme (SCS), as written in Sections 2.2.4.1 and 2.2.4.2, respectively. If an aeroplane operator cannot demonstrate that they have met both provisions, then it will not receive an emissions reduction credit. In addition, note 1 in this section explains that SAF will not be segregated from conventional fuel, and there is no way to determine the SAF content at the point of fuel uplift. Thus, monitoring from the blend point to the point of uplift is based on a mass balance approach.

Section 2.3.3 concerns the aeroplane operator’s reporting of sustainable aviation fuel use. To claim emissions reductions from SAF, aeroplane operators must report information on SAF use as described in Table A5-2 in Appendix 5 of the SARPs. Aeroplane operators must make claims for SAF use within each three-year compliance period of CORSIA, and Section 2.3.3.4 provides a recommendation that aeroplane operators make

The best way to prevent double claiming would be to require offset programs to demonstrate that host countries are accounting for emissions unit transfers by adding into their national emissions account balances a corresponding amount of emissions for each ton of reductions transferred to CORSIA.

these claims annually. Two provisions exist to reduce the risk of double claiming of SAF. First, per Section 2.3.3.1, aeroplane operators must subtract SAF fuels traded or sold to a third party from the total amount of SAF use that they report to their respective States. Second, aeroplane operators must declare that sustainable aviation fuel used for compliance in CORSIA was not used in any other greenhouse gas schemes to ensure that the emissions reductions are not counted twice, according to Section 2.3.3.2.

Finally, Section 2.4.3 pertains to the verification of sustainable aviation fuel use. The ICAO CORSIA document, "CORSIA Central Registry (CCR): Information and Data for Transparency" contains the information that registries must publish for the sake of transparency, including, "the production year of the sustainable aviation fuels claimed; producer of the sustainable aviation fuels claimed; type of fuel, feedstock and conversion process used to create each sustainable aviation fuel claimed; batch number(s) of each sustainable aviation fuel claimed; and total mass of each batch of sustainable aviation fuel claimed" (page C-20).

Why this matters:

Overall, the current procedures for monitoring, reporting and verifying sustainable aviation fuel use are not well-designed for high volumes of sustainable aviation fuel, and are not sufficient to prevent double claiming by States and economic operators. The current MRV system for SAF will need to be complemented with additional procedures performed by the sustainability certification schemes. Lacking the development of such additional procedures would substantially risk undermining the environmental integrity of CORSIA. Sustainable aviation fuel use could potentially be misreported at the State-level, and economic operators that are beyond the scope of the current procedures could potentially misuse the reporting systems.

ICSA recommendation: ENHANCE

The current MRV system for sustainable aviation fuels is not well-equipped to address high volumes of alternative fuels. While ICSA does not recommend a specific change in the SARPs or Implementation Elements at this time, ICSA does recommend that additional MRV procedures be developed in CAEP in order to avoid double claiming of SAF and ensure the environmental integrity of CORSIA.

The current MRV system for sustainable aviation fuels is not well-equipped to address high volumes of alternative fuels.... additional MRV procedures [should] be developed in CAEP in order to avoid double claiming of [sustainable aviation fuels] and ensure the environmental integrity of CORSIA.



Appendices

Appendix 1: Detailed Explanation of CORSIA Package Structure and Legality

SARPs (First Edition of Annex 16 Volume IV – CORSIA)

The SARPs (First Edition of Annex 16 Volume IV – CORSIA) include several components including: Standards, Recommended Practices, Appendices, Notes, and Attachments.²⁵

Standards are mandatory (unless a State has notified the ICAO Council that it cannot or will not comply with a given standard). Standards employ the verb “shall.” Standards are defined in the CORSIA Package Foreword as: “Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as necessary for the safety or regularity of international air navigation and to which Contracting States will conform in accordance with the Convention” (page A-7). In the event of impossibility of compliance, notification to the ICAO Council is compulsory under Article 38 of the Chicago Convention.

Recommended Practices are provisions with which States should strive to comply. Like with Standards, Recommended Practices employ specific verbs which make them identifiable and reflect the level of compliance required. Recommended Practices employ the verb “should.” They are defined in the CORSIA Package Foreword as: “Any specification for physical characteristics, configuration, material, performance, personnel or procedure, the uniform application of which is recognized as desirable in the interest of safety, regularity or efficiency of international air navigation, and to which Contracting States will endeavour to conform in accordance with the Convention” (page A-7). Recommended Practices can be identified easily in the SARPs, because they are printed in italics with the prefix: “Recommended Practice”.

²⁵ For a full list of components see the ICAO CORSIA Package Foreword, page A-7.

Appendices are grouped separately for convenience but form part of the SARPs. Whether appendices are mandatory or recommended depends on how they are referenced within a Standard or a Recommended Practice.

Notes are included *in the text* of the SARPs and give factual information or references bearing on the Standards or Recommended Practices in question, but *do not constitute part of the SARPs*. When reading over the SARPs, Notes can be identified easily because they are printed in italics with the prefix: “Note.”

Attachments comprise material supplementary to the Standards and Recommended Practices or are included as a guide to their application.

Environmental Technical Manual (ETM)

The proposed new volume of the Environmental Technical Manual (*Environmental Technical Manual (Doc 9501), Volume IV—Procedures for demonstrating compliance with the Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA)*) provides additional guidance material on how to implement parts of the CORSIA Package. It will be part of the CORSIA Package but is not included in the State Letter.

Implementation Elements

Implementation Elements are directly referenced in the proposed SARPs. They are “... considered essential for the implementation” of the CORSIA Package (page C-1). In addition, “[t]he work to finalize this draft material is ongoing by the ICAO Committee on Aviation Environmental Protection (CAEP) and remains subject to the approval of the ICAO Council. It is anticipated that the final Implementation Elements and Supporting Documents will be available by the relevant applicability dates of the proposed First Edition of Annex 16, Volume IV—CORSIA” (page C-1).

Supporting Documents

The Supporting Documents describe ICAO processes to manage and maintain the ICAO CORSIA Implementation Elements and the approval process by the ICAO Council. They provide technical information, where applicable, on the development of the ICAO CORSIA Implementation Elements.

Interpretation of legally binding nature of different CORSIA Package elements

As described above, SARPs are legally binding insofar as States agree to comply with them and do not notify ICAO of their inability to comply. Accordingly, all of the material contained within the SARPs must be included in implementing legislation or regulations on a national level. However, States, not ICAO, are primarily responsible for enforcing SARPs. **Transparency is therefore essential to determining whether States and airlines are complying, and this informs many of ICASA’s recommendations in *Understanding the CORSIA Package*.** In the case of the CORSIA Package, the information contained in the Implementation Elements and Supporting Documents is crucial to the integrity and proper functioning of CORSIA. More specifically, expert legal opinion

considers that where a Standard references an Implementation Element, that Implementation Element becomes mandatory.

Appendix 2: Summary of the Process for States to Respond

The following is a summary of what States must know to respond to the CORSIA Package.

Responses to the SARPs (First Edition of Annex 16, Volume IV)

- To respond to the SARPs States must reply using *Enclosure B—Response form to the proposed First Edition of Annex 16, Volume IV*. This form can be located on page 94 of the State Letter.
- Per Enclosure B, ICAO classifies Member States' responses to whether each State:
 - “Agrees with comments,”
 - “Agrees without comments,”
 - “Disagrees with comments,”
 - “Disagrees without comments,” or
 - “Does not indicate a position.”
- When a State uses the terms “no objection” or “no comment,” ICAO will classify these as “agreement without comment” and “no indication of position,” respectively.

Responses to the Implementation Elements

- States may respond to the Implementation Elements by using the “Voluntary Response Form for States Wishing to Comment on the Draft ICAO CORSIA Implementation Elements,” located on page C-34 of the CORSIA Package.
- According to the State Letter, the comments on ICAO CORSIA Implementation Elements “will not form part of the review of the proposed First Edition of Annex 16, Volume IV, but will be considered to inform further deliberations by the Council on the ICAO CORSIA Implementation Elements.”²⁶

Deadline for response to ICAO

States must ensure that their comments reach ICAO Secretary General Dr. Fang Liu **no later than March 5, 2018**.

Additional information

ICAO Member States usually provide responses to ICAO State Letters via the Member States' civil aviation authorities. Some Member States formulate regional responses and request the State Representatives from their region who serve on the ICAO Council to provide the comments to the Secretary General.

²⁶ ICAO CORSIA Package, page 2.

About ICSA

The International Coalition for Sustainable Aviation (ICSA) works to reduce pollution from air travel. As a network of nonprofit organizations representing millions of members, ICSA is the only environmental civil society group accredited as an observer by the International Civil Aviation Organization (ICAO), the United Nations standard-setting body for international air travel. ICSA member organizations include Aviation Environment Federation, Carbon Market Watch, Environmental Defense Fund, the International Council on Clean Transportation, Transport & Environment, and WWF. For more information, please visit www.icsa-aviation.org.

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