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U.S. Airline Principles on Use of Book and Claim in Sustainable Aviation Fuel Accounting

Airlines for America® (A4A)[1] and its member airlines are committed to working in partnership to address climate change. As an industry, we are committed to reducing the emissions associated with air travel and air freight. Developing a robust marketplace for sustainable aviation fuel (SAF) will be a critical solution in our path to net-zero greenhouse gas emissions across the aviation sector by 2050.

Airlines and SAF producers have been working together to drive the creation of a viable, scalable market and ecosystem for SAF to meet the sustainability and business needs of both airlines and SAF producers. Air carrier customers[2] have commitments of their own to reduce carbon emissions from their business travel and shipping activities. As the SAF market has evolved, and as the economics of SAF have remained challenging, customers working to reduce their own carbon emissions from air transport have stepped forward to work with airlines and SAF producers to support and enable the SAF market through book and claim[3] accounting systems. A4A and its members support the use of book and claim and are committed to partnering across the industry on its implementation.

Book and claim is part of SAF accounting that can provide in-sector and in-value chain reductions, as well as allow airlines, customers and SAF producers to share in the costs and benefits of SAF in this developing market. Because the physical SAF molecules and their associated environmental benefits cannot be readily physically tracked and delivered to individual aircraft and individual customers, book and claim provides a method for transparently accounting for and assigning the environmental benefits to airlines and their customers while maintaining assurance of environmental integrity. Book and claim allows the environmental benefits of SAF to be disaggregated from the SAF physical fuel, avoiding unnecessary costs and emissions of physically deploying quantities of SAF to every specific location where someone wants to obtain emissions reduction, whether the SAF is purchased on the voluntary market or for regulatory compliance. It is a broadly accepted and employed methodology—which is currently in use in other energy sectors—that has been adopted by airlines, SAF producers and suppliers, customers and other stakeholders for use in the SAF market.

While there is broad consensus that book and claim models can be effective in allocating environmental benefits and support scaling the SAF market, there is not yet consensus on all aspects of how to implement book and claim for SAF transactions. There are a growing number of book and claim platforms in operation or development, each with their own rulebook. This proliferation and lack of cohesion risks creating confusion with regulators and in the marketplace which threatens the credibility of the use of book and claim in the SAF market. As overall SAF production and use grows, it is critical that SAF producers, airlines and customers align on principles, standards and implementation practices for SAF book and claim to as great of an extent as possible. In establishing these elements of book and

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[1] A4A is the principal trade and service organization of the U.S. airline industry. A4A's members are: Alaska Air Group, Inc.; American Airlines Group, Inc.; Atlas Air Worldwide Holdings, Inc.; Delta Air Lines, Inc.; FedEx Corp.; Hawaiian Airlines; JetBlue Airways Corp.; Southwest Airlines Co.; United Airlines Holdings, Inc.; and United Parcel Service Co. Air Canada, Inc. is an associate member.

[2] Customers is meant to include all air transport service buyers: corporate, individual, business, leisure, and cargo/freight
[3] Per ISO (the International Organization for Standardization), Book and Claim is a Chain of Custody model in which the administrative record flow is not necessarily connected to the physical flow of material or product throughout the supply chain.

claim, we recognize the importance of several high-level objectives:

- Maintain confidence that SAF consumption is leading to actual, in-sector greenhouse gas (GHG) emission reductions on a lifecycle basis
- Establish a set of principles and business practices that transparently, consistently and reasonably allocate the costs and benefits of SAF production and use
- Allocate SAF environment benefits appropriately across the value chain; including producers, operators, customers and others without overstatement (i.e., double counting)
- Report, track and measure progress against climate targets consistently with regulatory and non-regulatory frameworks, standards and best practices for rigorous climate disclosure

To the outlined objectives, those participating in SAF book and claim transactions should adhere to a consistent set of principles based on the latest in greenhouse gas accounting methodology and guidance for SAF accounting. The Greenhouse Gas Protocol (GHGP) is the most widely used and accepted set of corporate and public greenhouse gas accounting standards. GHGP defines direct emissions as emissions that are owned and controlled by reporting entities; and indirect emissions as emissions that are the consequence of activities of a reporting entity but occur at sources owned or controlled by another entity.

As defined by GHGP, for aviation the direct emissions, or Scope 1 emissions, are the result of aircraft operations from the combustion of jet fuel. The indirect emissions from the combustion of jet fuel, or Scope 3 emissions occur in multiple categories defined by GHGP[4]. The Scope 3 emissions from business travel (category 6) are commonly discussed, but Scope 3 emissions exist for several other stakeholders in the aviation value chain in their respective categories. These include air freight customers (categories 4 and 9), aircraft financiers (categories 13 and 15), aircraft manufacturers (category 11) and fuel producers (category 11). Thus, the scopes of emissions resulting from the use of jet fuel between airlines, downstream customers, and upstream suppliers are considered to be multiple and overlapping. Scope 1 and Scope 3 emissions benefits resulting from the use of SAF, referred to as attributes, are similarly multiple, overlapping and non-duplicative when claimed by different parties in separate scopes or categories. These attributes can be created, retired and then claimed when reported as an emissions reduction using book and claim accounting across all of the Scope 1 and Scope 3 categories.

The U.S. airlines are committed to collaborating with stakeholders in the SAF value chain and in the SAF book and claim community to ensure that a common set of understandings, principles, requirements and practices exist across book and claim systems and across standard setting bodies in government and non-governmental organizations. While there is consensus on many aspects of the use of book and claim for SAF, there remain several aspects of importance to U.S. airlines that require further discussion as delineated below. With that context, we provide a set of positions regarding key issues of discussion in support of consistent and transparent SAF accounting across book and claim systems and stakeholders. The below list is not exhaustive and comprehensive and does not preclude the identification of other issues by U.S. airlines as the use of book and claim for SAF accounting evolves and matures.

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[4] GHGP defines 15 categories of Scope 3 emissions. A single Scope 1 activity emission results in several categories of Scope 3 emissions. Notable relevant example categories for this discussion include business travel (category 6), upstream transportation (category 4), downstream transportation (category 9), use of sold products (category 11), downstream leased assets (category 13), investments (category 15). Reductions of emissions from the use of SAF can result in non-duplicative reductions in several Scope 3 emissions reduction categories.

U.S. Airline Positions on Key Issues for Use of Book and Claim in SAF Accounting

Scope 1 and Scope 3 SAF attributes should be tracked through a book and claim registry or similar ledger that can be third-party verified[5]

SAF producers should support book and claim transactions with both airlines and end customers. The Scope 1 and 3 SAF attributes should be associated with each other and the SAF batch identifier in the registry (a.k.a. attached) to reduce the risk of double counting. As the entities in the value chain closest to and bearing responsibility for the certification of the fuel through its lifecycle, SAF producers and suppliers are best equipped to provide stakeholders (airlines, customers, regulators, etc.) the transparent reporting and credibility needed for the market to continue scaling. SAF producers and suppliers are not expected to participate with every registry or ledger, but SAF environmental benefits sold must be documented in an accessible and auditable format.

Registries and ledgers should be interoperable, creating safeguards to prevent the double counting of emission benefits of the same batches of SAF across multiple registries and/or ledgers

Additionally, ease of use and flexibility should be considered in that a registry should support management of a broad range of SAFs and associated purposes. Managing multiple registries creates an administrative burden for airlines and aviation customers who partner with a portfolio of SAF suppliers and airlines and thus may procure a variety of SAFs.

For registries to support advancement of a voluntary SAF market, they need to address concerns of airlines and their customers while simplifying their use. At a minimum, registries should harmonize on the following points:

- SAF volume traceability across registries.
- Calculation methodology for SAF Scope 1 and Scope 3 attributes.
- Attribute documentation and its delivery mechanism to Scope 3 customers.
- The identification and tracking of mandated SAF volumes in applicable jurisdictions.

Ideally, a central data repository that tracks attributes for each SAF batch, across multiple registries and ledgers, would be developed

Registries and ledgers could link to this repository to reduce the risk of double claiming of attributes. Such a repository would require the administration of an independent third party, governmental or otherwise. Whether a central data repository or another equivalent solution, providing assurance of being able to identify and prevent double claiming is critical to protect the credibility of the SAF book and claim ecosystem and its stakeholders.

Registries and ledgers must not only uphold the integrity of SAF accounting practices, but also support the further development and scaling of the global SAF market

Mitigating the risk of double counting is paramount to maintaining the integrity of SAF accounting and ensuring that emissions attributes issued to aviation customers are valid and thus can be appropriately recognized in jurisdictions with opt-in respective corporate GHG emissions inventories. There are currently multiple registries and private ledgers in the market available to address these concerns. Registry options range from those provided by sustainability certification schemes, to those created for specific SAF suppliers and others tailored to corporate customers. While such a range of solutions illustrates a recognition of the need for controls, it also creates complexity for airlines, customers and SAF producers to navigate.

For voluntary SAF purchases, controls should be put in place in contracts and registries in order to provide assurance against instances of double counting or double claiming

Some examples described below and others are described later in this document:

- Registries must maintain association between the SAF batch identifier, Scope 1 attributes, and Scope 3 attributes
- SAF purchase and sale contracts should have explicit delineation of emissions reduction attribute rights
- Operators and customers can only report and claim SAF emissions reductions from purchase with contracted SAF attribute rights

Operators should publicly report whether Scope 3 SAF attributes were allocated to customers in corporate & cargo SAF programs to prevent erroneous double claiming by other Scope 3 customers

Airlines and other operators will be publicly disclosing their SAF use as part of their sustainability and GHG reporting. In order to prevent confusion by readers of airline reports, operators should disclose whether Scope 3 emissions reductions from SAF were allocated to customers through corporate and cargo SAF programs. Without this information, there is potential that individuals outside of those corporate and cargo SAF programs might erroneously claim Scope 3 emissions reductions.

Proof of delivery of the blended SAF into common jet fuel infrastructure is required to ensure actual emissions reduction has occurred

To ensure that an emissions reduction from SAF consumption has occurred, one must demonstrate displacement of fossil fuel via documented chain of custody (CoC) tracking of the physical finished SAF fuel product from production to delivery into an airport’s jet fuel delivery infrastructure. This is commonly done on a mass balance basis.

Delivery into co-mingled airport fueling infrastructure is a commonly accepted point to prove combustion of SAF through the displacement of conventional jet fuel. Other points upstream of the airport, such as pipelines, when blended SAF becomes co-mingled with conventional jet fuel and can no longer be separately tracked may also be acceptable. This approach ensures integrity, alignment, consistency and transparency for Scope 1 claims for aircraft operators. Maintaining traceability of the batch of blended SAF until delivery into common co-mingled fuel infrastructure is necessary regardless of whether the Scope 1 attributes will ultimately be assigned to another operator.

SAF environmental attribute registry entries should not be created until after proof of delivery of the blended SAF into a common fuel infrastructure or direct proof of combustion

This ensures that no environmental benefit claims are made for SAF that, for whatever reason, is unused and does not displace a corresponding quantity of conventional jet fuel. Once the fuel is delivered into a common co-mingled fuel infrastructure, such as an airport fuel farm, or a common, un-segregated jet fuel storage facility, it can be assumed that the SAF is used, and fossil jet fuel has been displaced. Delivery into segregated off-airport storage or segregated on-airport storage generally does not provide assurance of combustion. Only when the batch of SAF has been delivered into storage co-mingled with conventional jet fuel can assurance of combustion be provided.

Scope 1 attributes should be created in a registry or ledger simultaneously with Scope 3 attributes

Unlike out-of-sector market-based mechanisms, multi-scope recognition across the value chain is possible for SAF. Scope 1 and Scope 3 attributes result from the use of SAF by an operator that displaces fossil fuel. Scope 3 end user attributes can only be assigned as a result of the use of SAF and in tandem should require an operator to be assigned the corresponding Scope 1 attribute, as described above. Both the Scope 1 and Scope 3 attributes should be linked to a specific batch of fuel in the registry.

In bilateral transactions directly between non-operator entities and Scope 3 customers, Scope 3 attributes can only be retired after the Scope 1 attributes are assigned

Maintaining a dependency of Scope 3 retirements on the corresponding Scope 1 assignment ensures that no orphan Scope 1 scenario can occur. Scope 1 attributes must be assigned to an operator within 24 months of fuel delivery and attribute creation in the registry[6]. Following the assignment of Scope 1 and Scope 3 attributes, the retirement of Scope 3 attributes can only occur after the retirement of the Scope 1 attributes. Creating an assignment dependency between Scope 1 and Scope 3 attributes provides additional assurance for the Scope 3 customer that the batch of SAF fuel is consumed by an operator and thereby preserving environmental integrity of the Scope 3 claim.

Customers should be able to acquire any quantity of Scope 3 attributes from any operators irrespective of which operators those customers used

In addition to there not being any geographic limitation on the assignment of Scope 1 and 3 attributes relative to the location of consumption, there should not be a limitation on customers acquiring Scope 3 attributes resulting from SAF used by one carrier and attributing them to business activity with another carriers. Customers should be able to buy SAF from any carrier and assign it to their inventory irrespective of which carrier the customer operated with.

[6] Supports and corresponds with Smart Freight Centre guidance, and RSB Book and Claim Manual v3.0

Carriers retain the right to decide whether they allow companies or individuals not using their transportation services to purchase Scope 3 attributes and assign the Scope 3 attributes to business activity with other carriers.

Re-assignment of Scope 1 attributes should only be made through a fuel supplier or directly between operators

Airlines who do not have access to SAF where they operate may look to acquire Scope 1 attributes from fuel suppliers or other operators to reduce their reported emissions. There should be no geographic limitation on the re-assignment of Scope 1 attributes relative to the location of consumption of the physical fuel[7]. Unretired Scope 1 attributes should only be re-assigned within their respective scopes and should not return to an un-assigned state while being re-assigned.

Re-assignment of Scope 3 attributes should only be made lateral or downstream

Scope 3 attributes will need the ability to be reassigned prior to retirement. Assigned but unretired Scope 3 attributes should only be transferred within their respective scopes and scope categories. Scope 3 attribute re-assignment should only occur downstream or among those who can make an applicable Scope 3 claim. Scope 3 air freight customers may allocate Scope 3 attributes to their downstream customers.

Scope 1 and 3 attributes can be reported in annual GHG inventories up to two annual reporting periods after attribute creation, or one reporting period prior to creation

Scope 1 and 3 attributes can be reported within two subsequent reporting periods after the date of SAF delivery and resulting attribute creation. Scope 1 and 3 attributes can be reported in retroactive GHG inventories for the prior annual reporting period if the SAF is delivered within 6 months of the following annual reporting period. This flexibility allows flexibility in potential delays of SAF delivery and still maintain alignment to airline and customer business plans. In no cases will registry attributes be retired prior to consumption of the fuel. Scope 1 and 3 attributes must be retired prior to reporting. Scope 1 and 3 attributes must be retired and reported in respective inventories within 24 months of attribute creation.

Summary

The above list is not exhaustive and comprehensive and does not preclude the identification of other issues by U.S. airlines as the use of book and claim for SAF accounting evolves and matures. As stated in the prior section of this document, U.S. airlines are committed to collaborating with stakeholders in the SAF value chain and in the SAF book and claim community to ensure that a common set of understandings, principles, requirements and practices exist across book and claim systems and across standard setting bodies such as governments and non-governmental organizations.

[7] Unless limited by regulation, this principle applies to voluntary SAF purchases and SAF purchased or delivered under a mandate.

Appendix - Definitions of Terms[8]

- **Attribute:** Scope 1 and Scope 3 environmental benefits associated with operators' use of SAF tracked using book and claim accounting are referred to as attributes.
- **Assign / assignment:** The entity who will be retiring the attribute has been designated, and the rights to the attribute have been assigned (applies to each of Scope 1 and Scope 3). Re-assignment is designating an alternate assignee after initial assignment. Some people might use the word "transfer" where re-assignment is being used here.
- **Blending:** Neat SAF has been blended with conventional jet fuel and passed its necessary tests and qualifications (i.e., ASTM D1655 qualified).
- **Batch / Batch Identifier:** A batch is a specific quantity of a product intended to have uniform characteristics and qualities. A batch identifier is a unique identifier for that batch of SAF.
- **Claim / Reporting:** When the emissions reduction is claimed or reported in an entities' GHG inventory reports or documentation outside of the registry (e.g., in a sustainability report).
- **Combustion:** SAF is considered combusted (consumed) after it has been delivered into a common fuel infrastructure and co-mingled with conventional fuel. Or if the SAF has been segregated until delivery into an airplane, the fuel is considered consumed upon airplane departure.
- **Creation:** Registry entries have been created for Scope 1 and Scope 3 attributes. Attribute creation cannot occur until after the fuel has been delivered. Creation is similar to "generation" as used in other book and claim documents.
- **Delivery:** Physical fuel has been delivered into a common fuel infrastructure with a point of no return and is no longer separable from the co-mingled conventional jet fuel (e.g., airport fuel infrastructure, pipeline connected to an airport).
- **Double Claiming:** A type of double counting in which the same emission reduction or removal is claimed by two different entities towards achieving mitigation targets or goals. The double claiming of emissions reductions and removals often happens between a company's GHG inventory and the national inventory where that mitigation outcome occurred. In the context of voluntary carbon markets, double claiming can occur between a country, jurisdiction or other entity that reports lower emissions or higher removals for the purpose of demonstrating achievement of a mitigation target or goal, and the entity retiring the carbon credit for the purpose of making a claim (adapted from ICVCM, 2022).[9]
- **Double Counting**: A situation in which a single emission reduction and/or removal is counted more than once towards achieving mitigation targets or goals (adapted from (ICVCM, 2022). Double counting may refer to a situation in which a quantity of GHG emissions is included in more than one organization's GHG inventory. This can occur across scopes (scope 1, 2 and 3) and within a single scope due to differing consolidation approaches, differing emissions calculation methodologies, and the intentional design of emissions accounting standards.[10]

  Instances where multiple parties inappropriately report or claim emissions reductions within a defined GHGP emissions category. Within the context of SAF, double counting could include scenarios where:
    - The same SAF batch is claimed by multiple operators as a Scope 1 emissions reduction
    - The same SAF batch is claimed multiple times by the same operator

[8] List of definitions is non-exhaustive and derived from various sources including RSB, CoSAFA, and SABA
[9] As defined by Science Based Targets Initiative, SBTi Glossary V 1.2
[10] As defined by Science Based Targets Initiative, SBTi Glossary V 1.2

- A given SAF batch is over allocated to end customers
    - SAF emissions reductions are claimed from a batch of fuel without rights to the emissions reduction attributes
    - SAF emissions reductions are claimed by customers without rights to the emissions reduction attributes
- **Ledger:** Internal accounting and tracking of SAF environmental attributes to include reallocation of scope 1 and scope 3 attributes.
- **Marketplace:** External system in which SAF environmental attributes (linked to specific SAF quantities) are available for purchase and tracked through a chain of custody.
- **Production:** Neat SAF fuel has been produced and passed its necessary tests and qualifications (i.e., ASTM D7566 qualified).
- **Purchase agreement or contract:** Agreement to provide fuel and/or environmental attributes at a future date/time and location.
- **Registry:** External system in which SAF environmental attributes (linked to specific SAF quantities and batches) are registered and tracked through a chain of custody.
- **Retire / Retirement:** The attribute in the registry is designated as retired after the fuel has been delivered (combusted) and the entry is reported as retired by its assignee.
- **Sustainability Certification:** Certification by a recognized Sustainability Certification Scheme (SCS).

Appendix – Business Flow Diagram

The creation, retiring and claiming of Scope 1 and Scope 3 environmental attributes by fuel producer/supplier, air carrier (fuel buyer) and air services buyer is depicted in the figure below. This diagram is intended to be illustrative for discussion purposes rather than precise in distinguishing between the relative sequencing from production and blending of physical fuel and the creation and retirement of attributes.