

How to safely account for SAF implementation in Scope 3 along and beyond RFEUA¹ in the regulatory and the voluntary market²

Background

Increasingly, industry is demanding low carbon fuels and energy sources in their purchased transportation services (LETS = Low Emission Transport Services; MBM Framework³ and MBM Specification⁴) to accomplish the transition to low/zero carbon transportation. Cargo transportation service users in aviation, as well as new regulatory requirements such as the European ReFuelEU Aviation (RFEUA) regulation, are transitioning the industry towards Sustainable Aviation Fuel (SAF). For the former, the main driver is their corporate climate targets, air transportation operators (airlines) and air transportation service users (LSPs, cargo owners) share ambitions to lower and remove their company's carbon emissions.

Airlines offer low carbon fuel services to such cargo and passenger service users via multiple chain of custody models, including book and claim, and therefore, it is crucial to apply the same underlying principles (as set out in ISO 14083, IATA RPs 1678/1726) and same data sources when implementing SAF accounting — for both regulatory as well as for voluntary purposes.⁵

In this connection, it is important to stress that SAF integration into the market requires some fundamental principles, especially in the absence of regulatory requirements or industry frameworks such as GHG Protocol on the subject:

- Transparent distinction between mandated SAF and SAF deployed and uplifted on top, beyond a fuel supplier's or other regulatory obligation: Airlines should transparently distinguish between uplifted fuel, post-event acquisition of claiming rights in the network and outside of airline network.
- Consider physical links between SAF deployment and SAF uplift with the following implications:
 - o Fuel suppliers offer “virtual” SAF (SAF produced in a different geographic area and deployed to airports where it is not uplifted by a purchasing airline)

¹ For similar legislation in UK, France, Norway, Sweden and Switzerland and further upcoming regulatory provisions in other regions, please see the separately published SFC White Paper “SAF Insights – A Practical Guide for Freight and Aviation Stakeholders”.

² The guideline **does not** address other regulatory frameworks relevant for aviation, such as CORSIA, LCFS, HBE etc. but rather refers to respective guidelines in place.

³ [Voluntary Market Based Measures Framework for Logistics Emissions Accounting and Reporting \(2023\)](#)

⁴ [Market Based Measures Specification for Logistics Emissions Reporting \(SFC-SPEC-001\)](#)

⁵ The crucial identity in the methodology refers to the GHG savings achieved by regulatory vs. voluntary measures. Such GHG savings a) must not depend on their (regulatory vs. voluntary) application and b) need to stay consistent throughout the transport chain. Differences may only occur in carbon intensities for the transport activity (gCO₂e/tkm) due to the transfer from and into different operational settings, such as fleet composition, geographical areas etc.

only in addition to local market requirements. SAF producing countries should not be deprived of their local markets (airports and operating airlines).

- Both fuel suppliers and airlines who want to be flexible beyond these rules need to make sure that their transactions do not negatively affect other market actors. If, e.g., an airline purchases SAF physically deployed at an airport where it does not operate from, both fuel supplier and airline need to make sure that a proven additional equivalent volume of SAF is actually deployed at this airport.

Such principles may enable more flexible book and claim mechanisms in the future. For the time being, the key aim should be a safe collaborative ramp-up of the market and building trust in it by all actors. Well-based claiming of Scope 1 emissions is a fundamental prerequisite for any voluntary uptake in Scope 3.

This guideline focuses on accounting rules for SAF implementation by airlines and transfer through the transportation chain along with transportation services and associated emission calculation of Scope 1 to Scope 3 emissions (“attributional accounting”⁶) while keeping the whole chain of custody in consideration, from upstream processes of SAF production and deployment through fuel burn (Scope 1) to the transfer of associated claims in the value chain (Scope 3).

The sections are set up in the following flow and logic:

- Accounting and reporting of SAF use by airlines as the central bridging actor between Scope 1 and Scope 3 accounting:
 - How to account and report utilization of mandated SAF from RFEUA mandate in Scope 3 of the clients
 - How to account and report for SAF use provided disproportionately to the voluntary market in Scope 3 of the clients
- Accounting and reporting of SAF use of contracted airlines by forwarders
 - Mandated SAF: Evidence to receive from airlines and integrate into
 - own organizational reporting
 - client specific reporting
 - Voluntary SAF: how to account for voluntary SAF use in
 - own reporting
 - client specific reporting
- Reporting for shippers

⁶ Attributional accounting in this context is considered to account (directly) for the emissions of SAF-based transport service. Attributional accounting not only secures the preservation of LETS (fuel replacement impact) but allows a safe transfer of such LETS to different operational settings to which such services are attributed.

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I. Accounting and reporting for SAF implementation within the RFEUA mandate by airlines along the transportation chain (Scope 1-3)

RFEUA puts a mandate on fuel suppliers to deploy a minimum of 2% SAF blended kerosene (by mass) to defined “Union Airports”⁷ on a country’s (or small countries cluster’s) weighted average basis from 2025 onwards and increase such share to 6% from 2030 onwards. Airlines are not mandated to uplift mandated SAF amounts. However, airlines operating over 500 flights or 52 commercial all-cargo air transportation flights from Union airports are obliged to uplift 90% of annual fuel needs at these airports. Though in theory they could circumvent the purchase of SAF blends from fuel suppliers, the implication would be for fuel suppliers to shift SAF blends to other airlines or pay respective penalties for non-compliance and shift volumes to the following year.⁸

How the practice evolves highly depends on the further regulatory provisions such as the flexibility mechanism which may, also in connection with EU-ETS, possibly apply equally to fuel suppliers and airlines.

- Fuel suppliers need to physically cover defined “Union Airports” in each EU country with a total of 2% of their fuel volume deployment according to RFEUA provisions: mass balance upstream until delivery point, weighted average for the flexibility mechanism across different Union Airports. Such flexibility mechanism allows disproportionate (<2% and >2% of SAF blends) delivery to such airports, depending on current infrastructure (constraints).
- SAF uplift of mandated/compliance fuel by airlines from solution (fuel) suppliers — no matter where it is delivered within the EU — can be distributed at own discretion in their transportation network as RFEUA provisions do not include Scope 3 attribution rules. IATA recommends distribution of such purchased SAF across an airline’s network equally (passengers and cargo), alternatively on single routes or a group of routes⁹, resulting in a unified fuel blend factor for the respective attribution scope.
- Airlines shall receive from their fuel suppliers a document confirming the volume of mandated SAF including the associated lifecycle GHG emissions profile. It allows airlines to account for the respective SAF use in Scope 1 and Scope 3 Category 3 and to make the distinction between distribution to service users equally and volumes dedicated to transportation services in the voluntary market.

From a system perspective, mandated SAF volume in the amount of 2% of in-scope fuel use (flight departing from EU airports) gives a threshold of regulatory additionality assessment according to the SFC MBM Framework and MBM Specification. The regulatory additionality assessment considers regulations for the entire supply chain. Therefore, mandated action of fuel suppliers distinguishes between additional or non-additional SAF. To avoid the risk of double-counting, mandated/compliance SAF under RFEUA should therefore not be sold to the voluntary market disproportionately, be it by a fuel supplier, or, be it by an airline.

⁷ Union airports are defined as airports where passenger traffic is higher than 800,000 passengers or where the freight traffic is higher than 100,000 tonnes in the previous reporting period, and is not situated in an outermost region.

⁸ For more details on the RFEUA mechanism: [FAQ on ReFuelEU Aviation - European Commission](#)

⁹ [IATA Sustainable Aviation Fuel \(SAF\) Accounting & Reporting Methodology](#) (Articles 5.4.1, 5.4.2, 5.4.3)

Advertising the use of SAF which is required by RFEUA is considered non-eligible due to the EU Unfair Commercial Practices Directive (UCPD).

Consequently, SAF volumes not used for compliance reporting of fuel suppliers in the European Union are regarded as voluntary and “additional”¹⁰ in terms of production and physical availability beyond the mandate.

All airlines should explicitly communicate to their clients on how they attribute and report the emissions profile of mandated SAF to them, including timelines. The Annex to this Guideline outlines in detail the IATA agreed options and the collected arguments¹¹ in favor and against two of the main debated options.

1) Accounting/reporting Scope 1: Split between mandated and voluntary SAF shares by airlines

To secure an auditable accounting and a well-founded basis for the decision making of transportation service clients (eg, forwarders, cargo owners), an airline shall split its utilized SAF amounts into mandated attributed to all Scope 3 clients equally and voluntary SAF amounts beyond the mandate (ear-marked by the fuel supplier) attributed to dedicated clients:

- ❖ X % = in-scope SAF of RFEUA deployed by the fuel supplier for compliance (ie, volumes marked as RFEUA mandated SAF by the fuel supplier)
- ❖ Y % = out-of-scope SAF deployed by the fuel supplier (ie, any SAF volumes beyond RFEUA mandate), sold on the voluntary market by uplifting airlines (disproportionately attributed)

The split of SAF volumes and attribution of emissions profiles to clients should be verified by an approved independent verification body.

Example 1:

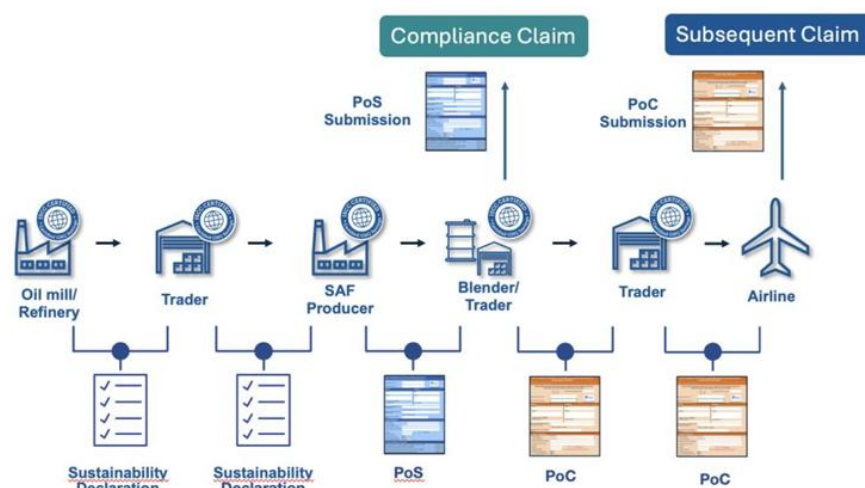
Airline A acquires **100,000 tonnes of SAF** for the uplift at European airports in 2025. This amount represents 5% of its total in-scope fuel use (**2,000,000 tonnes**). As per fuel supplier documentation, **60,000 tonnes** represent **mandated supply** and the remaining **40,000 tonnes** account for beyond-mandate “**additional**” volumes. The 60,000 tonnes are attributed to all users equally while 40,000 tonnes may be attributed to specific services for dedicated clients (“disproportionate attribution”). The underlying accounting logic, being the same as for mandated SAF distribution for calculating total GHG emissions, would refer to a different scope and associated emissions, depending on the agreed amount of LETS and associated fuel emissions profile substitution for the client.

A fuel supplier is required to provide information to the airlines on SAF volumes upon request within 45 days and by February 14 latest following the calendar-based reporting

¹⁰ Additionality definition: A criterion for assessing whether a Solution or a LETS are required by regulation.

¹¹ Note that these arguments are set out for transparency, with no evaluation or validity assessment.

year¹². It is recommended that this process is well established between the contracted parties with respective timelines, allowing each actor in the value chain to fulfill his respective reporting requirements. The airline receives a respective document (Proof of Sustainability / PoS) or Proof of Compliance (PoC or other document outlining SAF environmental profile) which it may use for regulatory purposes (EU-ETS). An example of documentation flow is set out by ISCC in their guidance document on issuing a Proof of Compliance document.¹³



2) Accounting/reporting for client reports: Airlines attribute and report mandated SAF

Airline clients wish to include precise information on air transport emissions in their Scope 3 inventory. Additionally, clients may report this information to their clients. However, the clients need a transparent and consistent GHG emissions report. This report needs to transparently present the attribution of SAF use according to recognized accounting methods of ISO 14083 and GLEC Framework.

An airline should set up accounting and reporting of its specific transportation emissions (eg., to clients), including SAF, in a similar way as it does for other reporting purposes under different regulatory frameworks. Transportation emissions reporting includes lifecycle GHG emissions of the specifically utilized fuels. However, the split in SAF volumes' use needs to be transparent for an auditor and in clients' and/or public reports.

See also [IATA Sustainable Aviation Fuel \(SAF\) Accounting & Reporting Methodology](#).

Consequently, an airline provides a report/document which contains the amount of transport services (tkm), the associated transportation emissions intensity (gCO₂e/tkm) and total emissions (tonnes CO₂e).

Associated therewith is the carbon intensity factor of SAF volume upon above-mentioned documentation of fuel suppliers. In the absence of respective documentation, the minimum

¹² Article 9.2 of the ReFuelEU Aviation regulation 2023/2405: "For the purpose of reporting SAF use under Article 8 of this Regulation, or under a greenhouse gas scheme, aviation fuel suppliers shall provide aircraft operators with relevant, accurate information relating to the reporting period, free of charge, as soon as possible, and in any case not later than 14 February of each reporting year."

¹³ [ISCC-Guidance-Document-Proof-of-Compliance-V1.0.pdf](#)

60% lower GHG WtW emission profile as per EU RED II¹⁴ = 35.6 gCO₂e/MJ can be applied for the respective SAF volume to calculate the emissions figures. However, in such case it would not be possible to apply the remaining attributes at a later stage as this would not qualify as attributional accounting (required by SBTi CNZS and GHGp).

Additionally, the airline report to clients the share (%) of mandated SAF attributed proportionately to all clients including an average carbon intensity figure of such SAF volumes.

Example 2:

Airline A acquires **60,000 tonnes of SAF** for the uplift at European airports in 2025. This amount represents 3 % of its total in-scope fuel use (**2,000,000 tonnes**). Additionally, **40,000 tonnes of SAF** are purchased for the uplift at European airports in 2025 on top of mandated SAF.

Airline A calculates the emissions intensity of the transport services for all clients. Airline A starts with the calculation of the carbon intensity of the utilized SAF:

SAF Batch	Mandated Volume (tonnes)	Carbon Intensity (gCO ₂ e/MJ)
A	100	18
B	500	25.3
⋮	⋮	⋮
Other ^a	25,000	35.6
Total^b	60,000	27.7

Subsequently, airline A calculates the carbon intensity of the fuel mix for all clients:

Fuel Type	Volume (tonnes)	Energy Content (MJ/kg)	Carbon Intensity (gCO ₂ e/MJ)
Fossil Jet ^c	1,940,000	43	89
SAF	60,000	44	27.7
Total^b	2,000,000	43.03	87.1

Next, Airline A calculates the energy intensity based on its in-scope fleet operations¹⁵:

Aircraft type	Energy intensity (kgJetA/tkm)	Share of transport activity
A388	0.2613	35%
B744	0.2090	30%
A333	0.1437	10%
B77L	0.1045	25%
Total^b	0.1946	100%

Airline A therefore reports to all clients an emissions intensity of such operations of:

$$0.1947 \text{ kgJetA/tkm} \times 43.03 \text{ MJ/kg} \times 87.1 \text{ gCO}_2\text{e/MJ} = 730 \text{ gCO}_2\text{e/tkm}$$

¹⁴ Note that 65% GHG saving threshold is only for SAF produced in installations starting operations from 1 Jan 2021. Aviation biofuels are defined in Article 3 (8) of RFEUA and must meet the reductions set in the Renewable Energy Directive 2018/2001, more concretely of Article 29.10 of that Directive – 65% GHG savings for installations starting operation from 1 January 2021.

¹⁵ It could be the fleet operating on a specific route, in a set of routes (eg, ex EU airports) or in the global network.

- a: Incomplete information: fallback/default of eligible minimum emissions reductions is used.
- b: Totals are calculated as sum and weighted averages.
- c: Voluntary SAF is considered fossil jet for calculation of reference carbon intensity.

An airline may outline explicitly its Scope 1 and Scope 3 emissions in its public report, especially in case of deviations in Scope 3, caused by adoption of voluntary SAF shares.

II. Accounting and reporting for SAF implementation by Airlines to the voluntary market along the transportation chain (Scope 1-3)

An airline may attribute LETS to a client beyond mandated SAF volumes to selected transportation services purchased from the airline.¹⁶ Such attribution SAF volumes' emissions profile would transform fossil transportation services into LETS with respective reduced carbon intensity (gCO₂e/tkm) and total emissions (gCO₂e) of the respective amount of transportation activities (tkm).

Example 3:

Airline A reports voluntary SAF use for a transport service (LETS) of
1,000,000 tkm
to dedicated Client A:

	LETS (tkm)	Transport Service Emissions Intensity (gCO ₂ e/tkm)		LETS Emissions (tCO ₂ e)	Emissions Reduction (tCO ₂ e)
		Reference	LETS		
Client A	1,000,000	730	188	188	542

The same logic applies to a forwarder who may integrate the LETS emissions profile figures in its own inventory. However, a forwarder's or other airline's client may require a detailed break-down of LETS to shipment level for LETS based on SAF beyond mandate. A forwarder may need to apply a recalculation of airline's LETS if such LETS to be booked are not 'similar in nature' (eg., TOC of airline's LETS is long-haul belly freight and TOC of LETS to be booked to a client is short-haul full freighter). Therefore, an airline should pass on information on the amount of SAF and associated fuel attributes - in terms of energy content and carbon intensity (gCO₂e/MJ) - applied for the services attributed to the forwarder.

For this purpose, a documented monitoring process is highly recommended (Standard Product/Service Specification and/or Operation Procedure or similar¹⁷), which includes:

1. Context of the product: drivers esp. beyond regulatory requirements and incentives.
2. Documentation of the product (Terms and Conditions and relevant marketing claims).
3. Documentation of individual contractual constraints (eg., no animal tallow for a vegan-food-production client).

¹⁶ This entails an airline's ownership of Scope 1 and related Scope 3 emissions attributes which it may dispose of, i.e., attribute to all clients equally or to dedicated clients, excluding the others accordingly.

¹⁷ See MBM Specification, Section 9.1-9.3

4. Outline of the exact offer: amount of LETS and associated transportation emissions intensity ($\text{gCO}_2\text{e/tkm}$) and total emissions (gCO_2e), broken down to shipment level¹⁸.
5. Information on where voluntary SAF shares are uplifted in an airlines network (this is information for transparency; it would not have an impact on the claimed LETS related emission savings). In case this information is not available because of uplift in another airline's operations, then this would qualify as Indirect LETS with respective information requirements according to MBM Specification, Section 6.3.

Accounting steps and data needed:

Case 1: Airline's LETS operational profile matches designated transport service – i.e. fuel use is similar

Step 1: Designated transport service's total emissions are deducted from client's emissions figures/report.

Step 2: LETS total emissions are added to client's emissions figures/report.

Case 2: Airline's LETS operational profile does not match designated transport service

Step 1: Associated fuel attributes in terms of LCA values:

- Total fuel use for designated transport service (client to request SAF attribution to routes/transportation areas which it would like to convert into LETS from a fossil jet fuel transportation service).
- Figures for substituted fossil reference fuel (currently Jet A/A1): energy density MJ/kg ¹⁹, and $\text{gCO}_2\text{e/MJ}$ (energetic) WtW, optionally respective values for TtW.²⁰
- SAF fuel quality: energy density MJ/kg , $\text{gCO}_2\text{e/MJ}$ (energetic) WtW.
- SAF sustainability profile established according to ISO 14083. Relevant standards such as EU RED, ICAO Eligible Fuels Life Cycle Assessment Methodology and certified by acknowledged certification systems (eg., RSB, ISCC)²¹ can be used to establish the fuel's sustainability profile. However, regional provisions may prevail. Therefore, transparency of emission factor sources for fuel's sustainability profile is imperative.

Step 2: Total emissions from reference fuel are calculated and deducted from client's emissions figures/report.

Step 3: LETS total emissions based on reference fuel use and SAF fuel quality and sustainability profile are added to client's emissions figures/report.

SAF fuel batches attributed to all clients proportionately need to be distinguished from SAF attributes to dedicated clients over a year's time. As IATA guideline referenced above provides for actual batch attributes to be reported into IATA CO2 Connect for Cargo data

¹⁸ This requirement secures the distinction to offsetting and also the transfer from forwarders to shippers.

¹⁹ Energy density defaults as per EU RED, Annex III: 43 MJ/kg fossil kerosene, 44 MJ/kg Fischer-Tropsch or HEFA based SAF

²⁰ The split into WtT and TtW emissions are optional. It enables the comparison of upstream emissions which may be higher for SAF than for fossil fuel (and still EU RED compliant). Default Jet A/A1 values are aligned between GLEC and IATA.

²¹ Because default values are different in these databases, it is recommended to only provide actual values for the allocated SAF (as far as available).

model, these emissions data form at the same time the reference for any voluntarily provided SAF based LETS.

An Airline mass-balances mandated SAF attributes in its operational network in a transparent way along options as agreed by IATA and as set out in the Annex of this document. It avoids attributing SAF to airports from which it does not operate or to over-allocate an amount of SAF attributes above actual fuel use for uplifts from airports from which it operates.²²

Note: The PoS is the key document for the voluntary market to prove a) ownership of voluntary SAF and b) indication of actual fuel attributes to be passed on to purchasers (default values need to be explicitly set out). Absence of a PoS document, if not proven by a fuel supplier otherwise, is most likely an indicator that SAF has been applied for regulatory purposes.

An airline needs to obtain the sustainability profile and documentation with the details of fuel emissions profile from the fuel supplier in case of a bilateral transaction. In case the transaction is accomplished by a registry, the fuel supplier may hand in a “transaction” or “transfer” document.

The airline provides a certified product (a LETS acc. to MBM Specification) to their clients.

For internal use of an airline, also for sharing with respective forwarder/shipper for their inventories, a reporting template may look like this where the related operations are defined by the client/s (fictitious figures).

Example 4:

Airline A attributes the transport service and the relevant fuel use to specific clients:

		Transport Activity (tkm)	CAF use (tonnes)	SAF use Mandate / Voluntary (tonnes)	Emissions Intensity (gCO ₂ e/tkm)	Total Emissions (tCO ₂ e)
Client A	Ordinary Transport Service	20,000,000	3,774	117 / 0	730	14,595
	LETS ^a (dedicated)	1,000,000	0	0 / 190	188	188
	Total ^b	21,000,000	3,774	117 / 190	704	14,784
Client B		30,000,000	5,661	51 / 0	730	21,893
⋮		⋮	⋮	⋮	⋮	⋮
Total^b		10,273,825,503	1,900,000	60,000 / 40,000	719	7,386,258

^a: See example 3

^b: Totals are calculated as sum and weighted averages.

²² Note that attribution to non-operated airports qualify as an “Indirect LETS” according to SFC MBM Framework and is subject to additionality requirements. Compliance fuels can therefore not be indirectly generated by an airline, only fuels beyond a mandate.

It is at the discretion of the contracting parties how and to which detail such data are exchanged.

III. Accounting and reporting for Forwarders of mandated SAF shares according RFEUA

(1) Emissions integration in own inventory

If a forwarder strives to integrate airlines' figures on utilized SAF in their own GHG inventory and client reporting, they need to obtain sufficient evidence for these emissions figures. Such evidence includes information on SAF use respectively attributed to LETS applicable for the purchased transportation services. Therefore, airlines provide documentation which contains the amount of transport services (tkm), the associated transportation emissions intensity (gCO₂e/tkm) and total emissions (gCO₂e) (see section II). The forwarder may obtain from airlines a SAF share (%) and a carbon intensity (gCO₂e/MJ) for the utilized SAF. If transportation emissions intensity figures are not available, the SAF share and the carbon intensity of the SAF may be applied in transport emissions accounting according to their transportation activities conducted by these airlines. If evidence for utilized SAF volumes of an airline is available, but carbon intensity of SAF is not known, the minimum 60% lower GHG WtW emission profile as per EU RED II = 35.6 gCO₂e/MJ can be applied for the respective SAF volumes.

Sufficient information may currently be available after the end of the reporting year and then still not coincide with the annual reporting obligations of a forwarder (CSRD, annual company reports etc.) nor the forwarder's customer. In case such documentation is not available, the recommended fall-back option is to obtain information on utilized SAF volumes from airlines with the largest transportation volume (tkm) applicable to the scope of such a reporting obligation. Airlines are considered 'with the largest transportation volume' if 70 % of a forwarder's transport volumes are covered by the selection of airlines. However, this requires adjustments and additional communication to customers and stakeholders once actual data is available.

Alternatively, previous year's data may serve as a basis for shipment specific accounting/reporting during the current year (eg., 2025 for 2026). Reporting based on evidence from the previous year is therefore considered accurate: If information on SAF utilization in 2026 is not available, the resulting emissions intensity (gCO₂e/tkm) or the SAF share (%) and the respective SAF carbon intensity (gCO₂e/MJ) of 2025 may be utilized for specific emissions accounting/reporting in 2026. This time offset should be consistently applied in emissions accounting from year to year. This offset should be sufficiently disclosed. If information from airlines and fuel providers becomes available at an earlier date, a change of the accounting method should be made with careful consideration and sufficient disclosure.

Example 5:

Total transportation activity of a forwarder's operations in aviation in one year:

50,500,000 tkm

Emission factor for in-scope transportation activity based on example:

Airlines A, B, C sum up to > 75 % of all transport services.

Airline	Transport Service (tkm)	Transport Emissions Intensity (gCO ₂ e/tkm)	Total Emissions (tCO ₂ e)	SAF Blend Factor
A	20,000,000	730	14,600	3.00 %
B	16,000,000	690	11,040	0.88 %
C	2,500,000	440	1,100	1.20 %
Others	12,000,000	690	8,280	0.0 % ^b
Total^a	50,500,000	693	35,020	1.53 %

^a: Totals are calculated as sum and weighted averages.

^b: default without evidence 0 % SAF share.

(2) Emissions integration for forwarders' clients

If a forwarder strives to include primary data into transportation emissions reporting to its clients, the current recommendation is to advise (by contract) airlines to report the airline's individual emissions-related figures (once available in 2026 for 2025) to the forwarder and/or to the forwarder's emissions calculation service provider.

IV. Accounting and reporting for forwarders of voluntary SAF in the form of LETS to the voluntary market

(1) For own inventory

In case a forwarder obtains LETS from an airline, i.e., attribution of voluntary SAF utilization to purchased transportation services, it is entitled to apply the associated lower GHG emissions in its own inventory.

In a public report, the forwarder follows the same principles as applicable for airlines (see section I). The forwarder reports all SAF fuel based GHG emissions and associated overall emissions intensity factors. The forwarder should amend these figures with the appropriate disclaimers²³ to highlight that these figures are not applicable for all clients. In particular, the forwarder should specify which emission intensity figures apply to all clients and which apply to dedicated clients.

(2) For clients' inventories

Acquired LETS from airlines may be passed on to dedicated clients with the respective lower carbon intensity factor within the same transport mode. It is highly recommended to match transport operation categories (TOC according to ISO 14083 definition) of airline LETS and

²³ See SFC MBM Framework Chapter 11 for examples

client LETS. When transferred to another TOC (granularity level, geographic area etc.), the associated SAF volumes need to be re-attributed to create suitable LETS for clients.

Example 6:

A forwarder purchases emissions attributes of 1,000 tonnes of SAF with 70 % less carbon intensity than fossil jet fuel beyond mandated SAF from airline's in the form of LETS:

Airline	LETS (tkm)	SAF Volume (tonnes)	LETS Emissions Intensity (gCO ₂ e/tkm)	Total Emissions (tCO ₂ e)	LETS Emissions Reductions (tCO ₂ e) ^a
A	1,000,000	190	188	188	542
B	2,514,286	400	131	330	1,405
C	1,543,860	200	97	149	530
⋮	⋮	⋮	⋮	⋮	⋮
Total^b	6,323,899	1,000	140	885	3,497

The forwarder re-attributes voluntary SAF based LETS for dedicated clients and their respective carbon footprint. In this example, client A receives the LETS from airline A on a 1:1 basis. Consequently, the LETS emissions intensity is adjusted for the other clients and includes the remaining airline's LETS and amounts to 131 gCO₂e/tkm.

Client	SAF Volume (tonnes)	LETS (tkm)	Emissions Intensity (gCO ₂ e/tkm)		Total Emissions (tCO ₂ e)
			Reference	LETS	
A	190	1,000,000	693	188	188
B	350	2,300,450	693	131	648
C	460	3,023,447	693	131	462

The forwarder may also report to the clients:

Client	Total Emissions Reductions (tCO ₂ e) ^c
A	505
B	1,293
C	1,699

^a: LETS emissions reduction is calculated based on airlines reference emissions intensity.

^b: Totals are calculated as sum and weighted averages.

^c: LETS emissions reduction is calculated based on forwarders reference emissions intensity (see example 5).

V. Subsequent reporting for shippers

If a shipper wants to report the utilization of SAF for its transport services, it needs to obtain the applicable Ordinary Transportation Service and/or LETS emission intensity and associated total emissions resulting from all its transportation services either from the forwarder or the airline and receive transparency on how SAF implementation affects the shipper's transport emissions.

Shippers procure LETS with different models (eg., targeted total/proportional emissions reduction, volume of utilized SAF for services etc.). The associated LETS should be reported by the forwarder/airline according to ISO 14083 and SFC MBM Framework/Specification.

Additional Notes

Underlying calculations according to ISO 14083 and agreed aggregation level

All underlying calculations shall be conducted according to ISO 14083. To avoid cherry-picking, it is highly recommended to consider different fuel and emissions intensities of belly-freight and full-freighter. Additionally, it is recommended to aggregate transportation services on specific route/s level as a starting point for an appropriate TOC.

Additional reporting considerations for airlines and clients: GHGp Scope and Category Reporting

Airlines report transportation emissions from aviation transport services are in airline's emissions inventory in Scope 1 (TtW) and Scope 3 Category 3 (WtT). Airlines' clients report transport emissions in Scope 3 Category 4 for upstream transportation or Scope 3 Category 9 for downstream transportation.

Road feeder services, which are organized by the airline involving subcontracted services are reported by airlines as well as airlines' clients in Scope 3 Category 4 for upstream transportation or Scope 3 Category 9 for downstream transportation.

Hub services are reported in Scope 1 and Scope 2 by the airline in own hubs. Purchased hub services in Scope 3 Category 4 for upstream transportation or Scope 3 Category 9 for downstream transportation. Airline's clients report on airlines' hub services in Scope 3 Category 4 for upstream transportation or Scope 3 Category 9 for downstream transportation.

While the Greenhouse Gas Protocol currently does not mandate reporting of WtT emissions, this is considered good practice and therefore highly recommended.

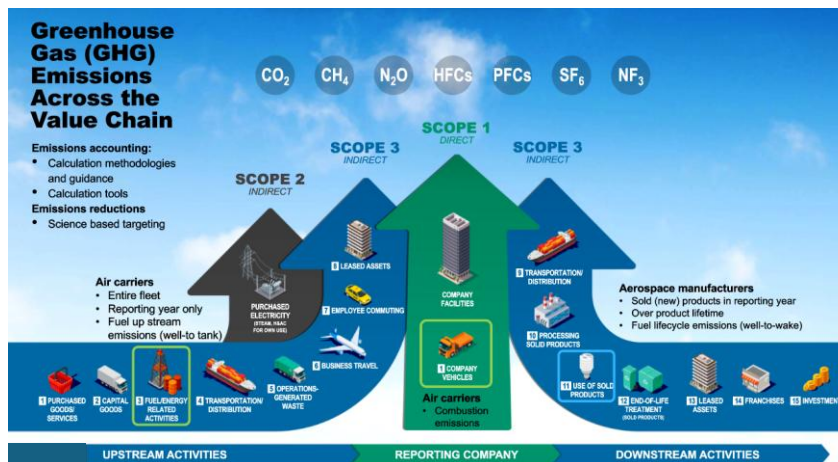
ISO 14083 and GHGP allow accounting of physically connected SAF volumes; any SAF volumes (potentially) without physical link (eg., from a Book and Claim Chain-of-Custody system) are currently not eligible to be reported under ISO 14083/GHGP. However, it is recommended to report such figures as a voluntary addition to an organization's emissions inventory. It is recommended that market-based data is used and reported in the same way as for Scope 2 emissions reporting in addition to the conventional emissions inventory.

Basically, conventional transport emissions are replaced by the lower emissions of LETS. The total transport emissions are the result of all LETS emissions and conventional transport emissions that have not yet been reduced/replaced by LETS. The market-based figure is reported in addition to the conventional inventory.

However, current expert work is on the way at both GHGP and SBTi to figure out on how to include and report market-based measures in emissions inventories and climate target setting. Until these revised frameworks are in place, the SFC MBM Framework and this guideline serve as a safe "interim" option for accounting and reporting of market-based

measures in aviation transport, with the confidence to enable this way the rendering of a high integrity service.

In case of a shipper's transported product to a client (another shipper), such client may also report lower transport emissions in Scope 3 Category 1 (Purchased Goods), if LETS are included in the carbon footprint of the product.



Source: ATAG

Glossary

CAF	Conventional Aviation Fuel
CO ₂ e	Carbon dioxide equivalents, in the context of units; includes CH ₄ (methane) and N ₂ O (nitrous oxide) emissions
Fuel Supplier	Deployer of fuel at Union airports, as defined and provided by RFEUA: List of Union Airports
GHG	Greenhouse gases, in the context of total emissions calculation
GHGp	Greenhouse Gas Protocol
LETS	Low Emission Transport Service
MBM Framework	Voluntary Market Based Measures Framework for Logistics Transports Emissions Accounting and Reporting
MBM Specification	Market Based Measures Specification for Logistics Emissions Reporting (SFC-SPEC-001)
MJ	Megajoule (per kg fuel), LCV
Ordinary Transport Service	Transport service rendered with fuel attributes (blends or pure fossil) to all clients equally
SAF (uplift in Europe)	Sustainable Aviation Fuel according to EU RED, listed in Annex IX. If not listed there, biofuels produced from these feedstocks are excluded acc. Article 4(5) RFEUA: food and feed crops, intermediate crops, palm fatty acid distillate (PFAD), palm and soy-derived materials and soap stock and its derivatives
Client	Purchaser of a transportation service (forwarder, shipper), also referred to as client in contractual and commercial context
TtW, WtW	Tank-to-wake – direct combustion emissions, well-to-wake = full energy/fuel life cycle emissions

Annex

Overview of RFEUA compliance SAF distribution options

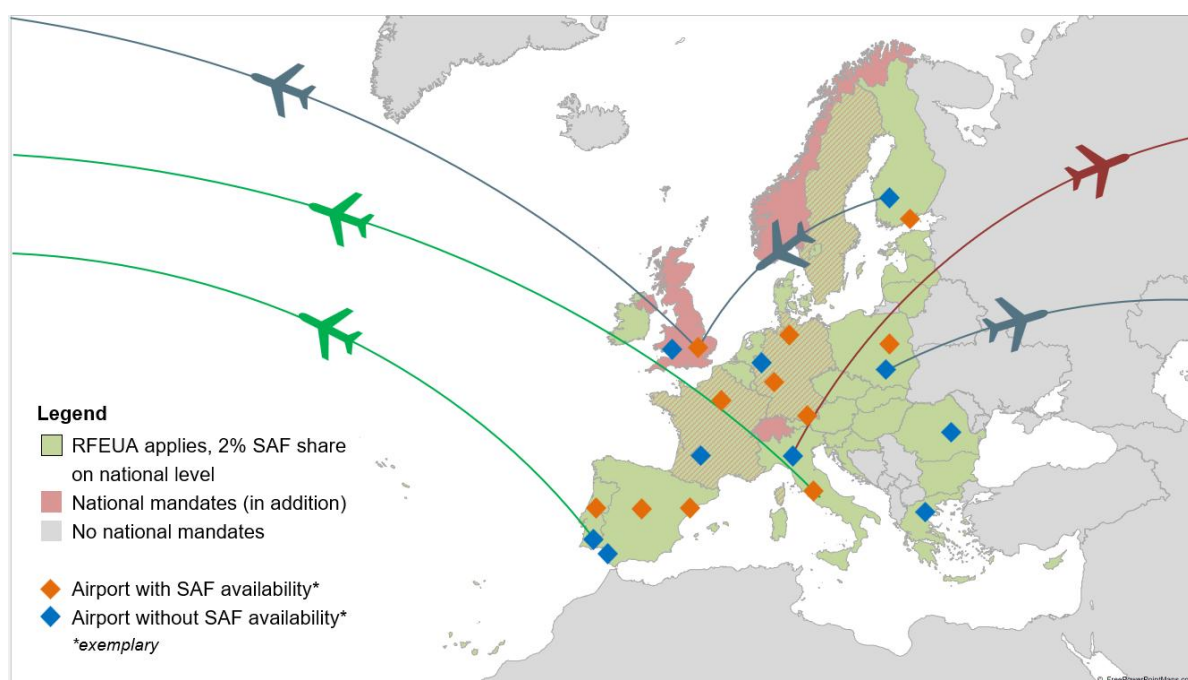
This document outlines key implications of SAF distribution deployed and uplift under the RFEUA regulatory framework and passed on in the transportation chain (Scope 3, categories 3.4 or 3.9, each including 3.3).

Option 1: Distribution of compliance SAF shares and associated carbon intensities along mandated origins (for RFEUA: equal shares ex all European Union airports)

Option 2: Equal distribution of compliance SAF shares and associated carbon intensities across global airline's network

Option 1 is causality based to the extent of mass-balancing SAF volume shares across mandated countries in Europe (see pooling options in graphic below), irrespective of actual physical shares uplift from specific European airports. Because of the flexibility mechanism, airports will receive different SAF volumes. While airlines may depend on physical access to SAF to be eligible for EU-ETS allowances, there is no dependency of physical links in case of Scope 3 attribution in the transportation chain other than actual operations and fuel uplifts of an airline from airports in mandated European countries. Volumes would be passed on proportionately across the operating network of an airline ("no favoritism"), in this option from all European airports in mandated countries (EU-27/RFEUA, Norway, Switzerland and UK). This enables forwarders and shippers (Scope 3 users) to expect (close to) 2% SAF shares in their European operations across their airlines' portfolio, irrespective of individual airline shares.

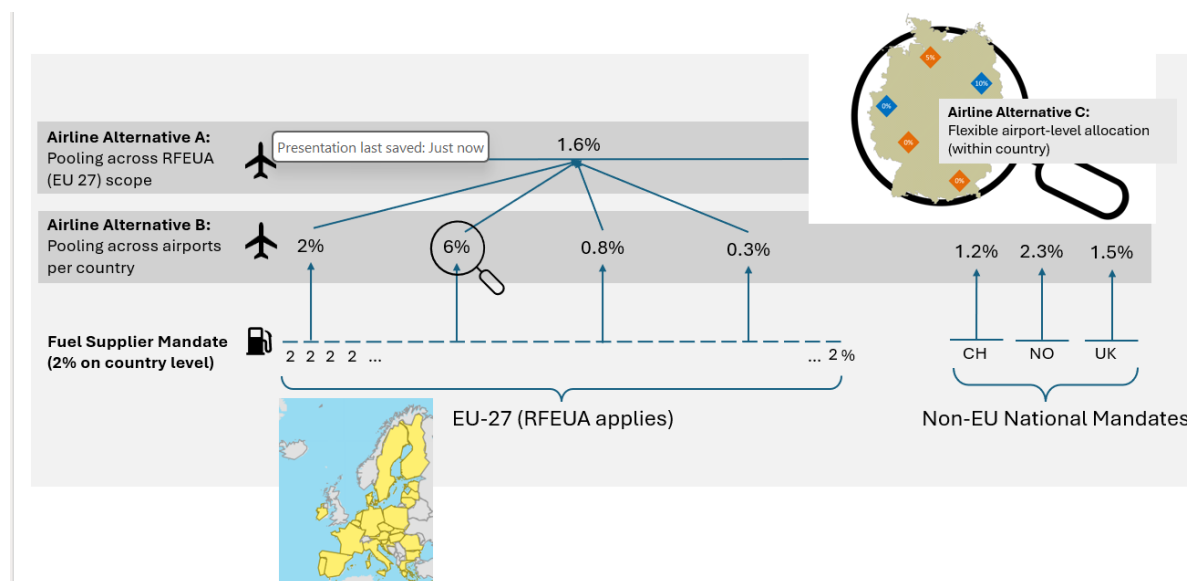
Below graphics illustrate the mandated areas and pooling options for Scope 3 attribution:



(i) The flexibility mechanism for fuel producers allows mass-balancing on a country level: Not each airport receives SAF shares, some over proportionately (>2%). The mandate is regarded as fulfilled with "sign-off" on national level.

(ii) Airlines may equally apply “flexibility” in attributing SAF shares to European airports in-scope of RFEUA or national mandates. Option 1 implies a pooling mechanism by which SAF shares may be aggregated across European countries where the same mandate/s apply, and their volume share is derived from total fuel use ex European airports’ operations, for all users in equal proportions: In case an airline receives SAF shares from European mandates which accrue to an overall share of 1.6% of uplifted fuels in mandated countries (see graphic below), all service users receive 1.6% SAF shares (with associated averaged out fuel attributes according to PoS/PoC documentation).

(iii) An airline may still attribute different shares to different airport uplifts, e.g., 10% from Paris, Frankfurt and Rome while 0% from all other European airports. In this case, service users receive proportionately 10% if they procure services from Paris, Frankfurt and Rome – while using services from other airports would not benefit from such SAF shares. The communication effort and risk would be with the airline to avoid double-counting (and wrong expectations) by their users.



EU 27 countries: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden

An airline may pool its SAF shares across all RFEUA countries for simplicity and offer an average SAF share from all airports they operate in EU-27 countries. It may alternatively pass on shares they acquire on a country level, and within a country also on selected airports’ level, not exceeding the volume of operations and fuel uplifts from such airports. However, this increases complexity and associated audit and communication requirements.

Option 2 is a geographically detached version of SAF volume and associated fuel attributes distribution across an airline’s global network. In principle, all clients of an airline’s service receive the same SAF attributes proportionately to their transportation volume (RTK or tkm) purchased from an airline or a forwarder, however, irrespective of the geographic network/s they are operating in. Because of airline’s individual SAF share purchases and individual global networks (with more or less operations out of all European airports covered by a mandate, including non-EU countries), actual shares for service users may turn out to be very different.

The logic of **both Options** would apply to every further regional upcoming regulation: Option 1 would apply origin-based ex airports which are in scope of such regulation (on a pooled/mass balance basis) and Option 2 would include such regulatory SAF volumes and attributes distributed equally in the operational network of an airline.

Collected Feedback from CAT Members

Option 1 – Regional Mandate Attribution

Pros

- **Cause–effect alignment:** costs, benefits, and emission reductions are tied to the geography of the mandate (fair and transparent).
- **Direct benefit to paying parties:** those covering the extra cost receive the corresponding GHG reductions.
- **Incentivizes shipper behavior:** lower emissions credited to SAF-mandated origins encourage traffic from those points.
- **Accuracy and legitimacy:** reflects actual legislation (e.g., ReFuelEU) and preserves visibility of SAF use in mandated regions.
- **Transparent and credible reporting:** consistent with other transportation modes and regulator expectations.
- **Simpler to explain to shippers:** aligns with their current understanding of EU mandates.
- **Easier initial implementation:** one EU blend factor, updated as the mandate ramps up.
- **Lower reporting burden:** fewer data handoffs, simpler reconciliation and audits compared with global allocation.
- **Scalable approach:** naturally extends to other regions once they introduce mandates.
- **Transparency and acceptance:** builds trust as companies paying for SAF [may] see clear, attributable reductions.

Cons

- **Higher complexity long-term:** requires tracking multiple local mandates and assigning values per routing.
- **Administrative burden:** significant effort needed to manage and scale across regions.
- **Data availability issues:** delays in fuel provider documentation (PTDs) under RFEUA; inconsistencies where providers withhold or charge for PTDs.

Implementation also depends on airlines' active participation and willingness to share attribution data through CO2 Connect or similar systems.

- **Perceived complexity:** some stakeholders consider this “very complex” compared to a global approach.

Option 2 – Global Network Allocation

Pros

- **Proportional distribution** of mandated SAF volumes across carriers' networks, reducing complexities once mandates outside of the EU go into effect.
- **Lower complexity:** mandate effects only considered once on a global level.
- **Simplified GHG accounting & reporting:** future-proof for upcoming mandates in other regions.
- **Unified invoicing:** process worldwide.
- **Continuity with current practice:** aligns with how reporting is done today.
- **Perceived long-term solution:** eventually seen as the desired global approach.

Cons

- **Perceived unfairness (Contributor–Beneficiary Gap):** disconnect between who pays and who benefits; companies outside mandate regions benefit without contributing.
- **Weakened incentive:** reduces pressure on non-mandated origins and inactive shippers to act.
- **Credibility risks:** regulators, auditors, and shippers may see it as greenwashing if non-EU flights benefit from EU rules.
- **Undermines regional mandates:** averaging blurs attribution, diminishing visibility and impact of EU SAF efforts.
- **Potential legal challenges** in applying charges outside the mandated region.
- **Systematic reporting bias:** results vary depending on LSPs' carrier mix, dominated by large carriers.
- **Higher reporting burden for LSPs/shippers:** reconciling different airline-specific blend factors and timelines is complex and error-prone.
- **Shipper resistance:** reluctance to pay for routings not covered by mandates; many shippers unwilling to go beyond compliance.
- **Diluted impact:** spreading costs globally reduces the surcharge to negligible amounts, undermining seriousness.
- **Compliance variation:** calculation and invoicing rules differ regionally (as with fuel surcharges), complicating alignment.