Manual for Aircraft Operators and Verification Bodies

ReFuelEU Aviation

Date	Version	Comment
09/10/2024	1.0	First publication of the manual.

The latest manual for aircraft operators and verification bodies can be found on EASA's website: https://www.easa.europa.eu/en/domains/environment/refueleu-aviation-digital-reporting-tool

DISCLAIMER

This document is issued by the European Union Aviation Safety Agency (referred to as both 'EASA' and 'the Agency') to provide its stakeholders with an updated, consolidated, and easy-to-read publication. It has been prepared by putting together the officially published EU regulations, EASA acceptable means of compliance (AMC) and guidance material (GM) (including their amendments) adopted so far and stakeholder input. However, this document is not an official publication, and EASA accepts no liability for for the use contained herein.

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1 Introduction

1.1 Purpose

This manual has been developed to guide aircraft operators and verifiers on how to report and verify the data referred to in Article 8 (a) to (d) and (g),[1] and Annex II of the ReFuelEU Aviation Regulation (RFEUA).[2] These obligations must be reported to both competent authorities and to the European Union Aviation Safety Agency (EASA).

This document builds on Regulation (EU) 2023/2405 of the European Parliament and of the Council of 18 October 2023 on ensuring a level playing field for sustainable air transport ("ReFuelEU Aviation" or "RFEUA"), and the Commission interpretative guidelines on the application of the exemptions referred to in Article 5 RFEUA ("Commission guidelines"). Stakeholders' feedback was considered during the preparation of the manual.

The manual will be revised as necessary under the supervision of EASA and the European Commission (DG MOVE, Directorate E for aviation) and aims to assist aircraft operators and verifiers with regard to their obligations under Article 8 and Annex II of RFEUA. The first reporting year, in particular, will serve as a test and a valuable learning opportunity to avoid encountering significant difficulties in regards to reporting and verification in subsequent years. The reporting will take place in the Sustainability Portal ("the Portal"),[3] a website EASA has developed to facilitate the reporting process.

In other words, the manual aims to help aircraft operators and verifiers to understand and implement the monitoring and reporting obligations and the verification processes.

1.2 Where to find further information

This **manual for aircraft operators and verification bodies** is one of three supporting documentation set made publicly available for the application of the RFEUA Regulation. In addition to this manual, the **Commission guidelines**,[4] produced and published by the European Commission, constitutes the second set of documentation focused on the guidance for the scope and application of the exemptions set out in Article 5 RFEUA.

Furthermore, EASA is developing a set of technical documentation for the **Portal**. The technical articles will provide simple information on how to navigate the Portal. Guidance on how to correctly onboard national authorities and aircraft operators to the platform to perform the reporting process is also integrated into this documentation.

All documents can be found on the websites of the European Commission Directorate General for mobility and transport and EASA.[5]

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[1] The Article 8 (e) and (f), or Tab 2 of the Template of Annex II, is not covered by this manual.

[2] RFEUA Regulation.

[3] EASA sustainability portal support page.

[4] Commission interpretative guidelines on the application of the exemptions referred to in Article 5 RFEUA.

[5] ReFuel EU Aviation – European Commission website.

COMMISSION GUIDELINES	**Commission guidelines on the application of Article 5** Guidance on the scope of Article 5 and the application of the exemptions.
OPERATIONAL MANUAL	**Manual for aircraft operators and verification bodies** Operational guidance on how to fill in the template's columns and carry out the verification process.
TECHNICAL SUPPORT	**Sustainability Portal manuals & FAQs** Supporting technical FAQs describing how to use the EASA Sustainability portal in which the aircraft operators will report.

Figure 1 - ReFuelEU Aviation document structure for three different purposes: Legal, operational and technical aspects.

2 General Guidelines

2.1 Aircraft operators in scope of the reporting obligations

According to Article 3(3) of RFEUA, an aircraft operator is "a person that operated at least 500 commercial passenger air transport flights, or 52 commercial all-cargo air transport flights departing from Union airports in the previous reporting period or, where it is not possible for that person to be identified, the owner of the aircraft." All aircraft operators within the scope of RFEUA are required to comply with the reporting obligations established in Article 8 and Annex II of RFEUA for those flights departing from a given Union airport.[6]

To ensure efficient implementation of the Regulation, each aircraft operator is assigned to an administering Member State.[7] The Commission, with the assistance of EUROCONTROL and in cooperation with Member States, prepares and publishes an annually updated list of the aircraft operators falling within the scope of RFEUA, and their respective administering Member States. The list is published on the Commission's website[8] and contains the following details for each aircraft operator listed:

- Its "unique identifier" (EUROCONTROL's Central Route Charges Office (CRCO) Identification Number used for invoicing route charges);
- The name of the aircraft operator;
- The aircraft operator's State of origin;
- And the administering Member State.

Opt-in
An aircraft operator operating commercial air transport flights below the threshold established in Article 3(3) RFEUA can choose to be treated as an aircraft operator under RFEUA. Similarly, an aircraft operator may decide that its non-commercial flights be covered by the Regulation. In these cases, they must notify the competent authority of the Member State responsible for these aircraft operators of their intention to opt into the Regulation.

2.2 Scope of flights to be reported

Only flights that fall under the responsibility of the aircraft operator should be considered in the report. The International Civil Aviation Organisation (ICAO) designator, used as a call sign for air traffic control (ATC) purposes in box 7 of the flight plan, is the determining factor for assessing and deciding which flights fall under the responsibility of the aircraft operator, regardless of whether the aircraft is leased, owned or wet-

[6] 'Union airport' means an 'airport' as defined in Article 2, point (1), of Directive 2009/12/EC of the European Parliament and of the Council (…) where passenger traffic was higher than 800 000 passengers or where the freight traffic was higher than 100 000 tonnes in the previous reporting period, and which is not situated in an outermost region, as listed in Article 349 Treaty of the Functioning of the European Union (TFEU).

[7] Pursuant to Article 11(5) of RFEUA.

[8] List of aircraft operators established pursuant to Article 2.4 and 3.3 of ReFuelEU Aviation. All aircraft operators that meet conditions set out in RFEUA are subject to the obligations of RFEUA, regardless of whether they are included or not in the list published.

leased. When the unique ICAO designator is not available, this will be determined by the registration numbers of relevant aircraft which is used as a call sign for ATC purposes in box 7 of the flight plan.

- **Flights included in the scope of the reporting obligations under Article 8 of RFEUA**

RFEUA applies to **commercial air transport flights** which, in line with Article 3(4) RFEUA, refers to "a flight operated for transport of passengers, cargo or mail for remuneration or hire, including a business aviation flight operated for commercial purposes."

Flights performed in the framework of **public service obligations** also fall under the applicability of RFEUA and are subject to reporting requirements under Article 8 RFEUA.

As described in the Commission guidelines on the application of the exemptions referred to in Article 5, **maintenance, repositioning and ferry flights** are included within the scope of Article 5(1) RFEUA and therefore included in the scope of flights to be reported under Article 8 RFEUA, as long as these flights are linked to the aircraft operator's commercial activities.

A commercial flight might be diverted when it makes an unplanned landing at an airport different from the destination airport indicated by the aircraft operator in the last approved flight plan filed prior to the flight departure. The **diverted flight** and the subsequent flight are both to be reported under Article 8 RFEUA if departing from a Union airport. If for any operational reason the aircraft operator does not meet the 90% uplift obligation of the required fuel in that unplanned Union airport due to the subsequent flight, the aircraft operator must provide justification as described in section 4 of this manual.

- **Flights excluded from the scope of the reporting obligations under Article 8 of RFEUA**

According to RFEUA Regulation and the Commission guidelines, the reporting obligations of Article 8 RFEUA do not apply to **military, humanitarian, repatriation** and **return flights** including **readmissions,**[9] **search and rescue, disaster relief** or to flights for **medical purposes**, as well as for **customs, police,** and **fire-fighting operations**. **Training flights** of the flight crew for their type license certification and **circular flights** (departing and arriving at the same airport without an inter-mediate stop) are also excluded.

Flights on official mission (**State flights**), of a reigning Monarch and his immediate family, of Heads of State, Heads of Government and Government Ministers, of a country other than a Member State, do not fall within the scope of RFEUA and are therefore also excluded from the reporting obligations under Article 8 RFEUA.

[9] In the meaning of the EU migration and asylum policy legislation.

Considerations regarding exempted routes under Article 5 (3)(a) and (b) RFEUA
The flights performed on routes for which exemptions under Article 5(3)(a) and (b) have been granted are out of the scope of the reporting obligations under Article 8 of RFEUA. Aircraft operators can apply for temporary exemptions from the obligation to refuel prior to departure on specific routes departing from Union airports. These exemptions apply to certain routes, limited to a maximum distance of 850 km or routes departing from airports situated on islands without rail or road connections limited to a maximum distance of 1200 km, under the specific circumstances laid down in Article 5(3)(a) and (b) RFEUA. Section 5 of the Commission guidelines on the application of the exemptions explains how aircraft operators can request and justify those exemptions. It also outlines the process and timelines for submitting the requests to the competent authorities as required by Article 5 RFEUA.

The following table provides the list of flights that must be included and excluded in the report of Article 8 of RFEUA.

REPORTABLE FLIGHTS	NON-REPORTABLE FLIGHTS
Passenger flights	Non-EU State flights
Cargo flights	Military flights, customs and police flights
Maintenance flights	Humanitarian, search and rescue flights
Diverted flights	Scientific research flights
Repositioning flights	Medical flights
Ferry flights	Fire-fighting flights
Flights performed in the framework of public service obligations	Training flights of the flight crew for their type license certification
	Circular flights
	Flights performed in exempted routes during the temporary period under Article 5(3) of RFEUA
	Repatriation flights, return flights, including readmission[10]

Table 1 - Summary table of reportable and non-reportable flights under Article 8 RFEUA.

[10] In the meaning of the EU migration and asylum policy legislation.

Step-by-step process to determine flights that are to be reported under RFEUA

Aircraft operators under the scope of RFEUA (please refer to section 2.1 for details on scope) should follow the following step-by-step instructions to determine the list of flights to be reported.

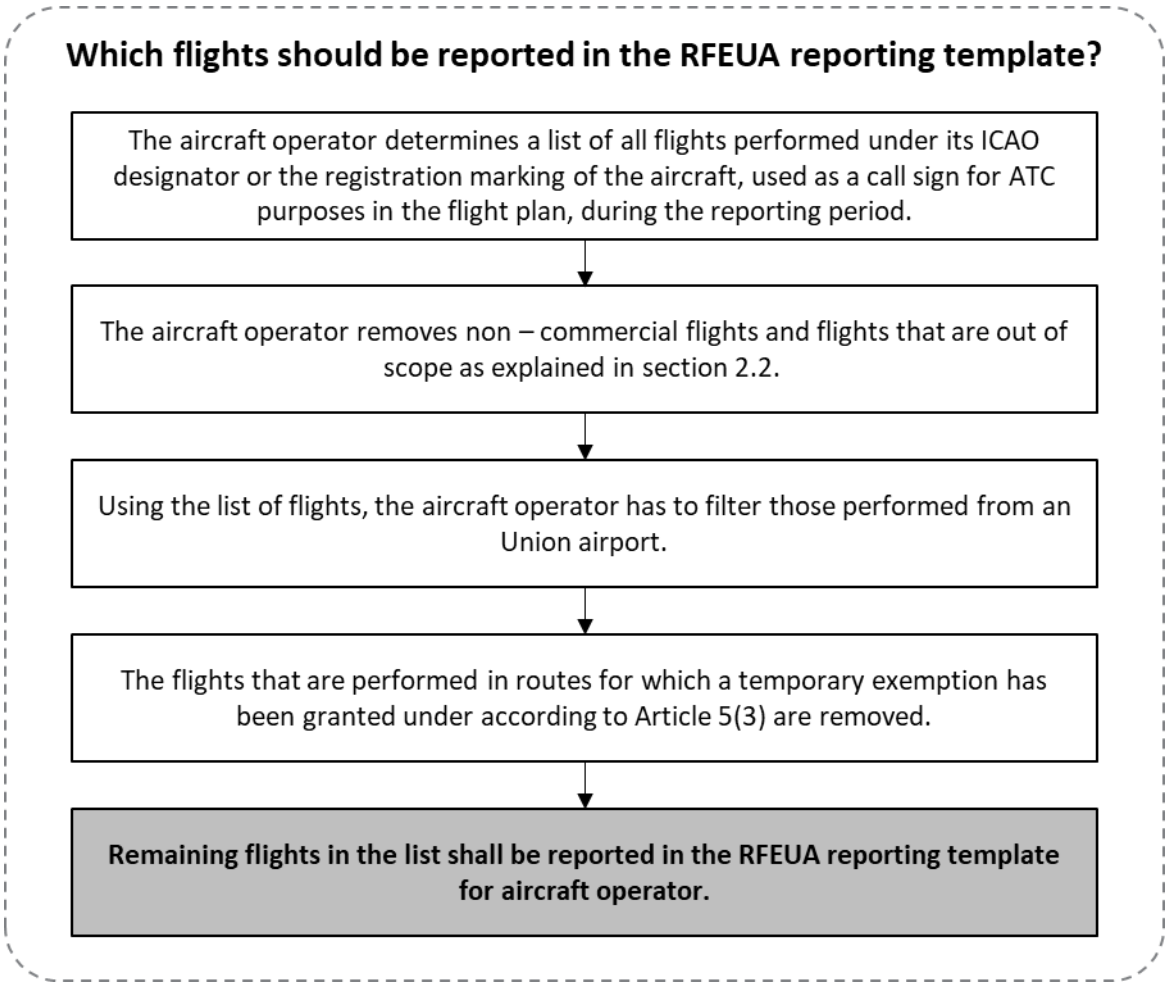

Figure 2: Process to determine the flights for the RFEUA reporting obligations.

2.3 Understanding Fuel Categories needed for the reporting

The core element of the RFEUA reporting requirements for aircraft operators is the fuel information they must report on an annual basis. To meet the reporting requirements, aircraft operators will need to provide both planned fuel and actual fuel information.

Fuel planning is regulated by EASA in the acceptable means of compliance (AMC) and guidance material (GM) to Annex IV Commercial air transport operations[11] [Part-CAT] in section ***AMC1 CAT.OP.MPA.181 Fuel/energy scheme — fuel/energy planning and in-flight replanning policy — aeroplanes***.[12] This fuel policy details the fuel categories to be provided in the operational flight plans (OFP) (see Table 2 below, column *EASA AMC Fuel Categorisation*). This categorisation is included in the Operations manual[13] and, in the context of RFEUA, it applies to aircraft operators with an Air Operator Certificate (AOC) delivered by the national aviation authorities of Member States of the European Union or by EASA.

Third-country aircraft operators that fall within the scope of RFEUA (if departing from a Union airport) might comply with ***ICAO Annex 6 "Operation of Aircraft"*** [14] instead of EASA's AMC. Additionally, national regulations and company-specific fuel category customisations may differ from both ICAO Annex 6 classification and EASA's fuel policy, using different nomenclature and category content. It is therefore important to establish a common understanding of what constitutes each fuel category.

Fuel planning requirements under any fuel scheme are composed of the following components regardless of the rules in application:

- The minimum legally required fuel to operate a flight;
- The discretionary fuel at the sole discretion of the commander;
- Extra fuel for anticipated delays or specific operational constraints.

Any additional fuel not clearly defined by the applicable regulation as essential for the flight's safety[15] would be considered economic fuel tankering.[16] This binary definition is to provide a clear definition between the necessary fuel, and fuel for economic tankering (refer to section 4.4 of Commission guidelines).

For reference purposes, Table 2 below shows the different fuel categories used under EASA and ICAO fuel planning policies for the pre-flight calculation to be included in the OFP as per ***AMC1 CAT.OP.MPA.175(a) Flight preparation, AMC1 CAT.OP.MPA.181 point (c)*** and ***ICAO's Annex 6 – Part I***, and the corresponding definitions as per EASA AMC.

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[11] Commission Regulation (EU) No 965/2012 of 5 October 2012 laying down technical requirements and administrative procedures related to air operations pursuant to Regulation (EC) No 216/2008 of the European Parliament and of the Council, OJ L 296, 25.10.2012, p. 1.

[12] AMC1 CAT.OP.MPA.181 Fuel/energy scheme.

[13] ORO.MLR.100 Operations Manual.

[14] ICAO Flight Planning and Fuel Management (FPFM) Manual, DOC 9976.

[15] Some regulations have additional fuel categories that could be accounted as fuel tanked for safety rules and not detailed in the ICAO nor the EASA schemes (e.g. extreme temperature fuel).

[16] Fuel tankering is a practice whereby an aircraft carries more fuel than required for its flight in order to reduce or avoid refuelling at the destination airport.

Basic fuel scheme principle	ICAO Annex 6 fuel categorisation	EASA AMC fuel categorisation	EASA AMC definition[17]	RFUEA categorisation
Legally required fuel	Taxi fuel	Taxi fuel	Expected fuel before take-off including the APU consumption	Required fuel
	Trip fuel[18]	Trip fuel	Fuel for take-off, climb, cruise, descent, approach, and landing	
	Contingency fuel	Contingency fuel	Fuel required to compensate for unforeseen factors either (higher of): - 5% of the planned trip fuel or - an amount to fly for 5 minutes at holding speed at 1 500 ft (450 m) above the destination aerodrome	Yearly Tanked Fuel Justified under Article 5(2)[19] YTFJ
	Destination alternate fuel	Destination alternate fuel	Fuel for missed approach and trip towards an alternate airport	
	Final reserve fuel	Final reserve fuel	Required 30 minutes of fuel at holding speed 1500 ft above destination aerodrome according to CAT.OP.MPA.181(c)	

[17] The below definitions apply to basic fuel scheme to Class A aeroplanes without variations. If other aeroplanes or variations are used, the aircraft operator must refer to the applicable EASA fuel scheme.

[18] For the purposes of RFEUA, trip fuel to be considered as defined in the ICAO Annex 6 but excluding the fuel *accounted for the operating condition 4.3.6.2* of the Annex, which according to EASA fuel policy is considered as extra fuel.

	Additional fuel	Additional fuel	Include an amount of fuel that allows the aeroplane to proceed, in the event of an engine failure or loss of pressurisation	
Commander's discretionary fuel	Discretionary fuel	Discretionary fuel	Fuel at the sole discretion of the commander	
Extra fuel	Not a separate category in ICAO Annex 6, but, for the purposes of aligning with EASA's categorisation, considered as fuel accounted for the operating conditions related to 4.3.6.2 of ICAO Annex 6	Extra fuel	Include anticipated delays or specific operational constraints that can be predicted	
Other fuel	N/A	N/A	N/A	Economic tankering

Table 2 - Fuel categories in the OFP as per the EASA AMC & GM for Part CAT and ICAO Annex 6, Part I.

Third-country aircraft operators
Third-country aircraft operators that are out of the scope of the Commission Regulation (EU) No 965/2012 might have other fuel planning schemes aligned with the relevant ICAO Annex and guidance material. In this case, with the exemption of the "taxi fuel" and "trip fuel" as per EASA definition, the rest of the categories are eligible to be considered as tanked quantities for fuel safety rules only if properly justified under Article 5(2) of RFEUA. They therefore do not include any quantity tanked for economic reasons.

[19] Please refer to section 4.1 for more details.

3 Guidance on the template for aircraft operator reporting

Within the framework of RFEUA, the aircraft operator must adhere to Article 8 and Annex II, and use the reporting template for aircraft operators available on EASA's website.[20] The following sections provide a detailed explanation for each column of the template and point out the sources to be referenced when gathering the required information.

A	B	C	D	E	F	G	H
Union Airport Name	ICAO Code of Union Airport	Total flights operated departing from the Union Airport (N° flights)	Total flights hours operated departing from the Union Airport (N° hours)	Yearly aviation fuel required (tonnes)	Yearly actual aviation fuel uplifted (tonnes)	Yearly non-tanked quantity (tonnes)	Yearly tanked quantity for fuel safety rules (tonnes)

Table 3: Reporting template for aircraft operators as published on the EASA website.

3.1 Union Airport Name (Column A)

Data to report

The Aircraft operator should report the flights at the departing Union airport, as defined in Article 3(1) RFEUA, having considered the exclusions and exemptions explained in Section 2.2 of this manual.

Data Source

Aircraft operators should use the name of the Union airport reflected in the list of Union airports published by the Commission and updated on a yearly basis.[21] Aircraft operators must ensure they use the latest version of the list.

3.2 ICAO Code of Union Airport (Column B)

Data to report

The ICAO airport code, or location indicator, is a four-letter code which designates aerodromes around the world.

Data Source

These codes are defined by the International Civil Aviation Organization and published quarterly in the ICAO Document 7910. The list of Union airports within the scope of RFEUA on DG MOVE website also details the ICAO code per Union airport.[8]

[20] RFEUA reporting template for aircraft operators published on EASA website.

[21] 24/05/2024 List of Union airports established pursuant to Articles 2.4 and 3.1 of RFEUA published by EC.

3.3 Total flights operated departing from the Union Airport (Nº flights) (Column C)

Data to report	Data Source
Total flights covered under RFEUA, departing from Union airports, having considered the exclusions and exemptions explained in Section 2.2 of this manual. The report must relate to actual performed flights (flights that actually took off from a Union airport).	The information should be extracted from the relevant internal flight management systems from the operator. Section 2 describes the steps to follow to obtain the number of flights to be reported per Union airport. The attribution of a flight to a specific reporting period is to be based on the time of departure measured in Coordinated Universal Time (UTC) (see example below).

Example:
If a flight departs from Paris at 23.00 p.m. UTC on 31 December 2024 and lands in Lisbon at 01.30 a.m. UTC on 1 January 2025, the flight should be listed in the 2024 report.

3.4 Total flight hours operated departing from the Union Airport (Nº hours) (Column D)

Data to report	Data Source
Aircraft operators need to report the total hours operated and flown during the entire reporting period, from every Union airport they depart from, for the flights covered under RFEUA, having considered the exclusions and exemptions explained in Section 2.2 of this manual. "Total flight hours operated" is to be interpreted as "block time" or "block-to-block" in hours, which is measured from the time an aircraft first moves for the purpose of taking off (from the moment the aircraft is pushed back from the gate or starts taxiing from its parking stand for take-off) until it finally stops at the end of the flight (the moment it comes to a final stop at a gate or parking stand after landing).	The information should be extracted from the relevant internal flight management systems from the operator, measured in coordinated universal time.

3.5 Yearly aviation fuel required (tonnes) (Column E)

Data to report

As defined by RFEUA, "yearly aviation fuel required" indicates the amount of aviation fuel referred to as "trip fuel" and "taxi fuel" in Annex IV to Commission Regulation (EU) No 965/2012(14)[22] that is necessary to operate all the flights covered by this Regulation operated by an aircraft operator, departing from a given Union airport, throughout a reporting period and having considered the exclusions and exemptions explained in Section 2.2 of this manual.

Data Source

Aircraft operators should use the final version of the OFP (the version signed by the captain) for each flight subject to RFEUA reporting requirements, to determine the fuel quantities that have been planned for taxi and trip fuel categories.

Note: Distinction between ATC Plan and OFP

The ATC flight plan is the document filed to the Air Traffic Control unit prior to departure to advise the planned route and alternate. They include the departure, en route, and arrival points as well as information of the aircraft and the aircraft operator.

The OFP also includes the route to be flown, but with planned flight times and flight levels considering actual wind components, fuel consumption (at each waypoint), and specifies the taxi, trip and other fuel figures. The OFP also is updated and compared to planned figures inflight by the flight crew with actual timings and fuel consumption to ensure the actual fuel consumption still allows for sufficient fuel on board upon arrival.

3.6 Yearly actual aviation fuel uplifted (tonnes) (Column F)

Data to report

Aircraft operators should report aggregated quantities of fuel uplifted for all flights from each Union airport subject to the RFEUA reporting obligations, having considered the exclusions and exemptions explained in Section 2.2 of this manual.

Data Source

Each aircraft operator should determine the fuel uplift based on one of the following:

a) the measurement by the fuel supplier, as documented in the fuel delivery notes or invoices for each flight; or
b) data from aircraft onboard measurement systems recorded in the mass and balance documentation, in the aircraft technical log or transmitted electronically from the aircraft to the aircraft operator.

Aircraft operators should use the same fuel density as used for operational and safety reasons, which may be either a standard value of 0.8 kg per litre or the actual density value.

[22] Please refer to section 2.3 for further details.

3.7 Yearly non-tanked quantity (tonnes) (Column G)

Data to report

As defined by RFEUA, "yearly non-tanked quantity" means the difference between the yearly aviation fuel required and the actual fuel uplifted by an aircraft operator prior to flights covered by this Regulation departing from a given Union airport, throughout a reporting period.

However, the obligation on aircraft operators refers to the 90% uplifting of the "yearly aviation fuel required" (trip and taxi out) at a departing Union airport, and not to the 100% (see Figure 3).

Data Source

Column G of the Template for aircraft operator reporting has been formulated as follows to reflect the fuel amount that is missing to reach the 90% threshold (Delta).

$$= \mathbf{If}\ (\mathbf{FU} \geq \mathbf{90\%} * \mathbf{FR}\ ,\ \mathbf{0}\ ,\ \mathbf{90\%} * \mathbf{FR} - \mathbf{FU})$$

Where:
FR= Fuel Required
FU= Fuel Uplifted

Note: Application of the column G calculation
The current version 1.2 of the reporting template made available on the EASA website[23] has an integrated formula to automatically calculate column G and avoid reporting errors and misinterpretation of the column G. Aircraft operators must ensure that they use the latest version of the template.

In order to allow for effective reporting and a clear understanding of the non-tanked quantities in relation to the uplifting obligation laid down in Article 5(1), and as illustrated below in Figure 3, **only quantities falling below the 90% threshold should be reported under the yearly non-tanked quantity (column G).**

Figure 3 (below) provides an overview of three potential scenarios that an aircraft operator might face at a Union airport.

1. In the first scenario, the aircraft operator uplifts more fuel than it requires yearly and, therefore, the aircraft operator does not have to report any yearly non-tanked quantities, indicated as zero in column G.
2. In the second scenario, the aircraft operator uplifts at least 90% of the fuel required from that Union airport, therefore the yearly non-tanked quantity should also be indicated as zero.
3. In the third scenario, the aircraft operator reports a yearly uplifted quantity lower than 90% of the required fuel, therefore the amount indicated as yearly non-tanked quantity should be the difference between the required fuel and the uplifted fuel excluding the 10% buffer.

[23] RFEUA reporting template for aircraft operators published on the EASA website.

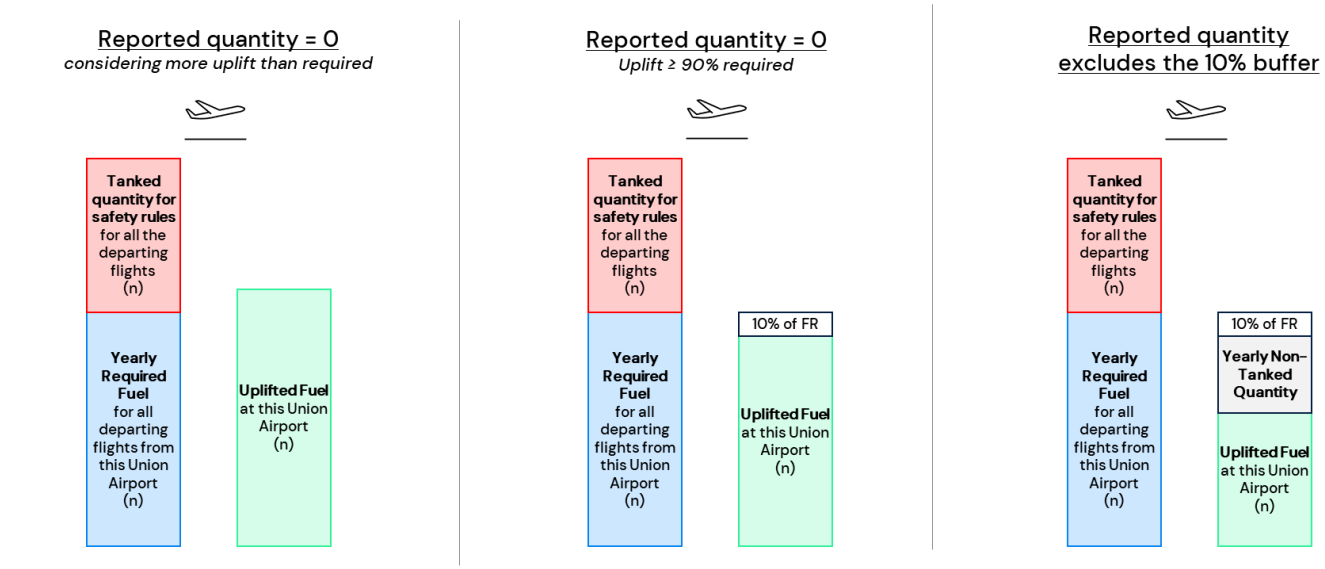


Figure 3 - Illustration of Yearly Non-Tanked quantity reporting in the reporting template.

3.8 Yearly tanked quantity for fuel safety rules (tonnes) (Column H)

Data to report

Aircraft operators need to report the yearly tanked quantity by providing the below calculation:

$$\boldsymbol{Column\ H = YTFJA(n-1) - YTFJD(n) + OFD(n-1)}$$

With:

$$\boldsymbol{OFD(n-1) = YFR(n-1) - AFC(n-1)}$$

$YTFJA_{(n-1)}$ = Yearly Tanked Fuel Justified Arriving[24]
$YTFJD_{(n)}$= Yearly Tanked Fuel Justified Departing
$OFD_{(n-1)}$ = Operational Fuel Divergence
$YFR_{(n-1)}$ = Yearly Fuel Required
$AFC_{(n-1)}$ = Actual Fuel Consumption
(n-1) means all flights arriving at the Union airport
(n) means all flights departing from the Union airport

Data source

Datapoint	Subset	Source
Yearly Fuel Required (n-1)		OFP (n-1)
Yearly Tanked Fuel Duly Justified Arriving (n-1)		OFP (n-1)
Yearly Tanked Fuel Duly Justified Departing (n)		OFP (n)
Actual Consumption(n-1)	Block-Off Fuel	OFP/Technical log (n-1)
	Block-On Fuel	OFP/Technical log (n-1)

(n-1) means all flights arriving at the Union airport
(n) means all flights departing from the Union airport

Actual consumption should be understood as:

$$\boldsymbol{AFC = Block\ Off\ Fuel - Block\ On\ Fuel}$$

[24] Refer to section 4.

3.8.1 Explanation on assumptions for column H

Column H is related to column G. RFEUA takes into account the fact that fuel tankering, at times, occurs in order to comply with fuel safety rules, such as those laid down in Commission Regulation (EU) No 965/2012, and in such cases is justified by safety reasons. Article 5(2) of RFEUA, requires an aircraft operator to justify non-compliance with the requirement to uplift at least 90% of the "yearly aviation fuel required" at a given Union airport.

Column H aims to justify the fuel that has been previously tanked for safety reasons (uplifted in previous flights) and that could prevent the aircraft operator from meeting the refuelling obligation laid down in Article 5(1) RFEUA for full or part of the yearly non-tanked quantities reported by the aircraft operator in column G per Union airport.

The Commission guidelines provide additional explanations including how the aircraft operator must justify the aviation fuel amounts falling below the 90% threshold for fuel safety reasons. The aviation fuel amounts included in the 10% buffer as stated in Article 5(1) RFEUA do not need justification.

The actual fuel consumption is rarely equal to the planned required fuel. The divergence between actual consumption and planned fuel is often due to operational fuel savings achieved during the flight (e.g. ATC shortcut, better weather), or additional burning (e.g. extended delays, unexpected, congested airport). This **operational fuel divergence** (OFD) must be accounted in the column H justification to avoid being considered as economic fuel tankering.

As illustrated below (Figure 4), the virtual composition of the fuel remaining in the tank, assuming there is no economic tankering, is tanked fuel justified not used from previous flight plus the OFD.

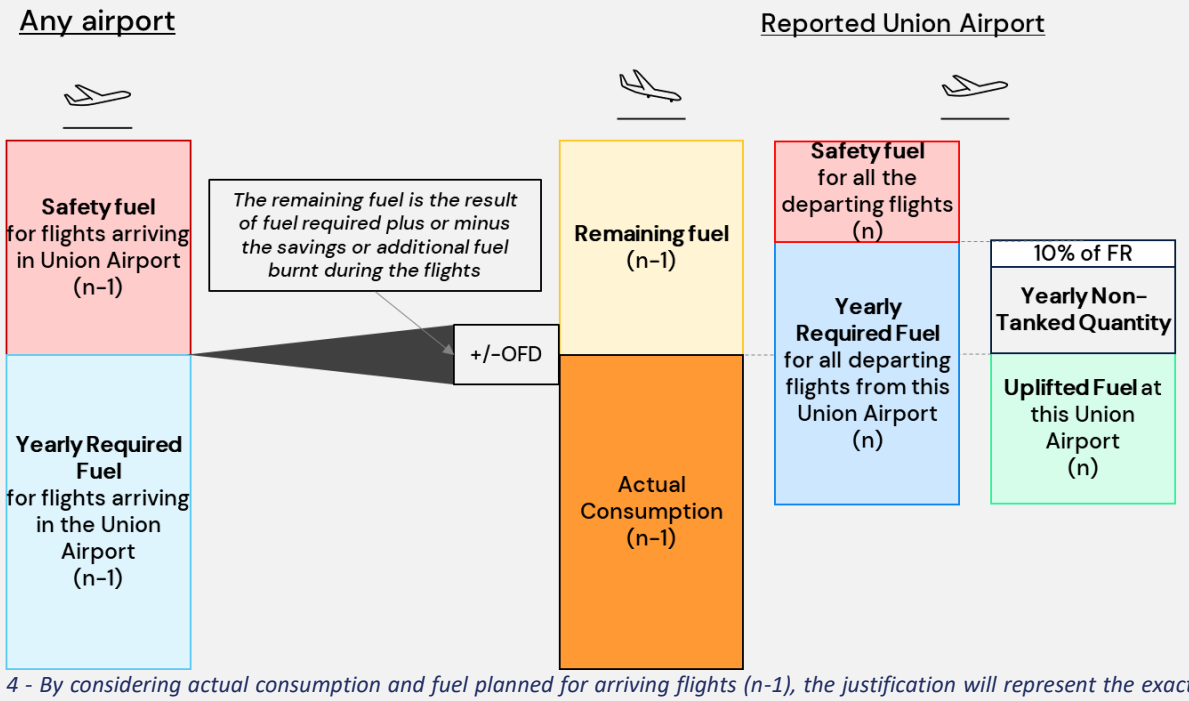


Figure 4 - By considering actual consumption and fuel planned for arriving flights (n-1), the justification will represent the exact YNT quantity.

3.8.2 Example for column H

The below illustrative examples consider three turnarounds happening at the same Union airport, in which some have economic tankering, and some have OFD. These three illustrative turnarounds consider three departing flights and their respective previous flights (arriving flights to that Union airport) that need to be reported under the same row of the template. Considering there are no other flights from that Union airport, the three departing flights would constitute the yearly flights of the aircraft operator from that Union airport to be reported.

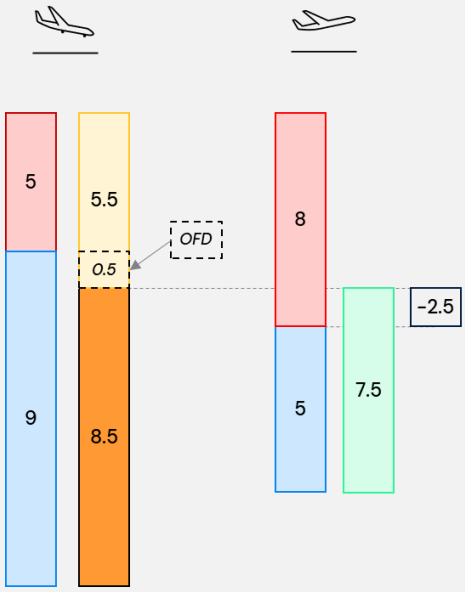
Legend

Tanked Fuel Justified	YNT
Required Fuel	Remaining fuel
Uplifted Fuel	Economic tankering
Operational Fuel Divergence	Actual Consumption

Two different scenarios are illustrated to reflect the reporting in column H for yearly tanked quantity for fuel safety rules in order to justify yearly non-tanked quantities:

Scenario 1 where some flights are performed with economic tankering

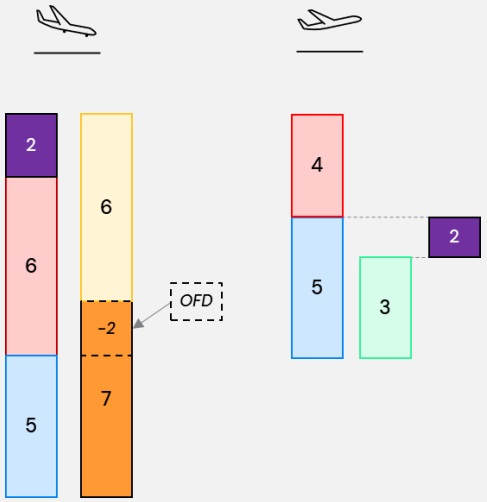
Flight 1 (no economic tankering and operational savings):
In this first turnaround, the aircraft operator had performed a flight to the Union airport with no economic tankering. In addition to this, it achieved an operational fuel saving during the flight which translates into a positive OFD. In other words, the aircraft consumed less fuel than the fuel planned as required fuel in the OFP of the arriving flight.



Column H= (5-8) + (9-8.5) = -2.5

Figure 5: Example of application of the formula in column H for the first turnaround reported in a single Union airport (Scenario 1).

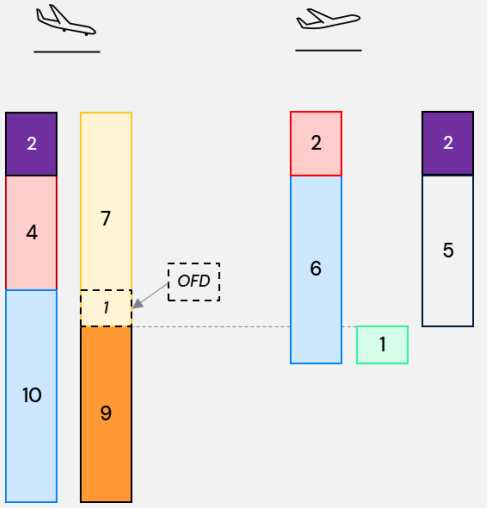
Flight 2 (economic tankering and operational losses):
In this second turnaround, the aircraft operator had uplifted additional fuel of 2 tonnes as economic tankering. In addition, during the flight arriving in the Union airport, the aircraft operator consumed more fuel than the fuel planned as required fuel in the OFP of the arriving flight. Therefore, the OFD is negative.



Column H= (6-4) + (5-7) = 0

Figure 6: Example of application of the formula in column H for the second turnaround reported in a single Union airport (Scenario1).

Flight 3 (economic tankering and operational savings):
In this third turnaround, the aircraft operator had economic tankering and operational savings. The difference between the safety fuel of the flight arriving and the safety fuel of the flight departing is 2 tonnes. In addition to this, the aircraft operator optimised its fuel consumption in the flight arriving, which results in an OFD of 1 tonne. By summing both for the calculation of column H, the tanked quantity for fuel safety rules is equal to 3 tonnes. This leaves the aircraft operator to fall short by 2 tonnes which corresponds to the economic tankering.



Column H= (4-2) + (10-9) = 3

Figure 7: Example of application of the formula in column H for the third turnaround reported in a single Union airport (Scenario 1).

Table 4 below illustrates how the aircraft operator should report the justification of yearly tanked quantity for fuel safety rules (column H):

- Column H is 0.5 tonnes (YTFJ + OFD)
  - Aggregated OFD is -0.5 tonnes *(0.5-2+1)*
  - YTFJ is equal to 1 tonne *((5+6+4) -(8+4+2))*

By applying the justification formula to the above scenario of three turnarounds from a single Union airport, the aircraft operator can justify 0.5 tonnes of yearly tanked fuel quantity for safety rules. By considering the 4 tonnes of economic tankering, that cannot be justified, the yearly tanked quantity (4.5 tonnes) is exactly equal to the difference between the yearly aviation fuel required and the yearly uplifted fuel quantities. In this case, the aircraft operator would have 2.4 tonnes of fuel that have not been duly justified (difference between 2.9 tonnes of fuel reported as yearly non-tanked (YNT) and 0.5 tonnes (column H) = 2.4 tonnes).

Column A to D

Union Airport Name	ICAO Code of Union Airport	Total flights operated departing from the Union Airport (N° flights)	Total flights hours operated departing from the Union Airport (N° hours)
Union Airport	XXXX	3.00	

Column E to H

Yearly aviation fuel required (tonnes)	Yearly actual aviation fuel uplifted (tonnes)	Yearly non-tanked quantity (tonnes)	Yearly tanked quantity for fuel safety rules (tonnes)
(5+5+6)	(7.5+3+1)	2.90	(5+6+4)-(8+4+2)+((9+5+10)-(8.5+7+9))
16.00	11.50	2.90	0.50

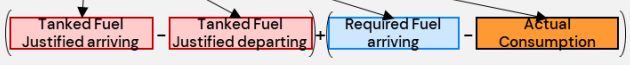
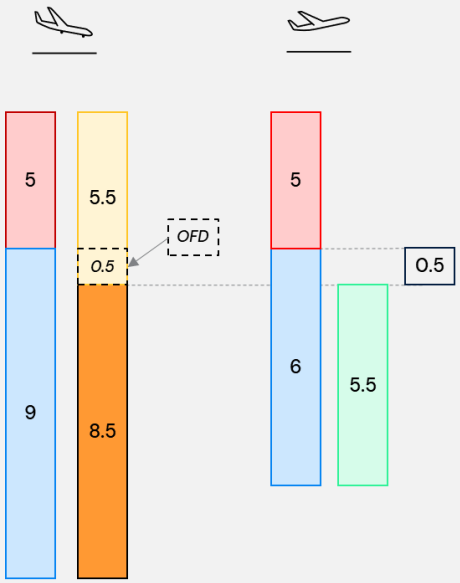


Table 4 – Sample of reporting justification of Yearly tanked quantity for fuel safety rules (column H).

Scenario 2 where there is no economic tankering

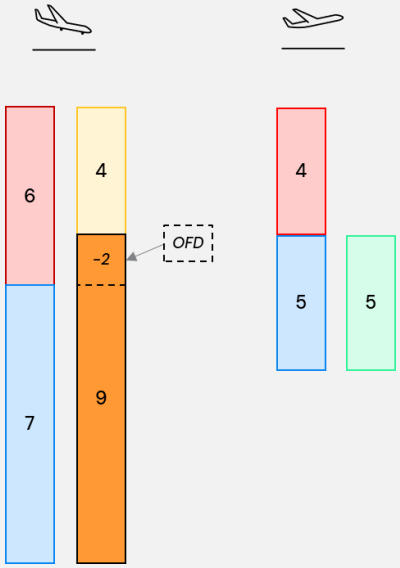
Flight 1 (no economic tankering and operational savings):
In this first turnaround, the aircraft operator had consumed 0.5 tonnes of fuel less than planned in the flight arriving to the Union airport (OFD=0.5). As safety fuel for the flight arriving is equal to the safety fuel of the flight departing, the only fuel to consider in column H is the OFD.



Column H= (5-5) + (9-8.5) = 0.5

Figure 8: Example of application of the formula in column H for the first turnaround reported in a single Union airport (Scenario 2).

Flight 2 (no economic tankering and operational losses):
In this second turnaround, the aircraft operator had consumed more fuel than the fuel planned as required fuel in the OFP of the arriving flight. The OFD is equal to -2 tonnes. The tanked quantity for fuel safety rules (column H) is equal to zero because the OFD compensates the safety fuel quantity difference (also 2 tonnes).



Column H= (6-4) + (5-7) = 0

Figure 9: Example of application of the formula in column H for the second turnaround reported in a single Union airport (Scenario2)

Flight 3 (no economic tankering and operational savings):
The calculation of column H for this third turnaround is a result of a difference (4 tonnes) between the safety fuel of the flight arriving (6 tonnes) and the safety fuel of the flight departing (2 tonnes) plus the operational fuel saving achieved during the flight arriving, (OFD=1 tonnes). Overall, the tanked quantity for fuel safety rules is equal to 5 tonnes.

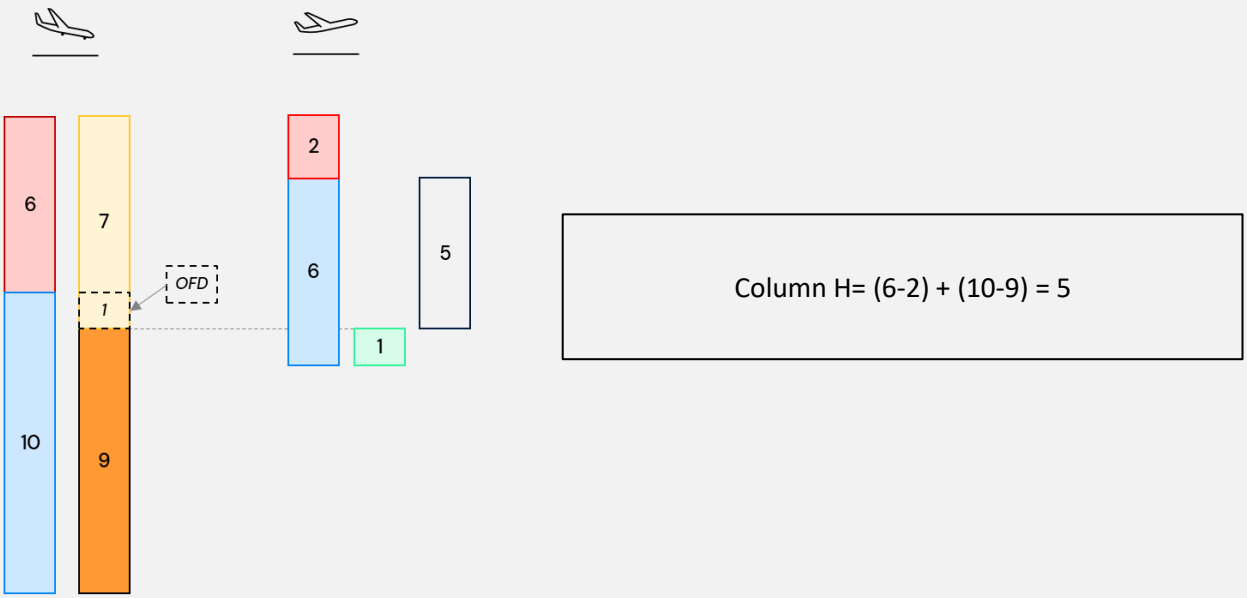


Figure 10: Example of application of the formula in column H for the third turnaround reported in a single Union airport Scenario 2)

Table 5 below illustrates how the aircraft operator should report the justification of Yearly tanked quantity for fuel safety rules (column H):

- Column H is 5.5 tonnes (YTFJ + OFD)
  - Aggregated OFD is -0.5 tonnes *(0.5-2+1)*
  - YTFJ is equal to 6 tonnes *((5+6+6) -(5+4+2))*

By applying the justification formula to the above example of three turnarounds from a single Union airport, the aircraft operator is able to justify 5.5 tonnes of yearly tanked fuel quantity for safety rules. Considering there is no economic tankering, the yearly tanked quantity justified (5.5 tonnes) is exactly equal to the difference between the yearly fuel required and the yearly uplifted fuel quantities. In this case, the aircraft operator would have justified 5.5 tonnes through the calculation of the column H and would therefore fully justify the 3.80 tonnes of yearly non-tanked quantity to the condition that all documentation proofs and verifications are correct.

Column A to D

Union Airport Name	ICAO Code of Union Airport	Total flights operated departing from the Union Airport (N° flights)	Total flights hours operated departing from the Union Airport (N° hours)
Union Airport	XXXX	3.00	

Column E to H

Yearly aviation fuel required (tonnes)	Yearly actual aviation fuel uplifted (tonnes)	Yearly non-tanked quantity (tonnes)	Yearly tanked quantity for fuel safety rules (tonnes)
(6+5+6)	(5.5+5+1)	3.80	(5+6+6)-(5+4+2)+((9+7+10)-(8.5+9+9))
17.00	11.50	3.80	5.50

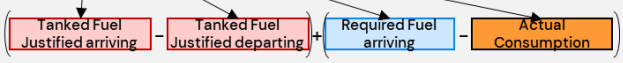


Table 5: Sample of reporting justification of Yearly tanked quantity for fuel safety rules (column H) for three turnarounds without economic tankering.

3.9 Summary

*Error! Reference source not found.*Figure 11 provides a comprehensive summary of the data sourcing for each column.

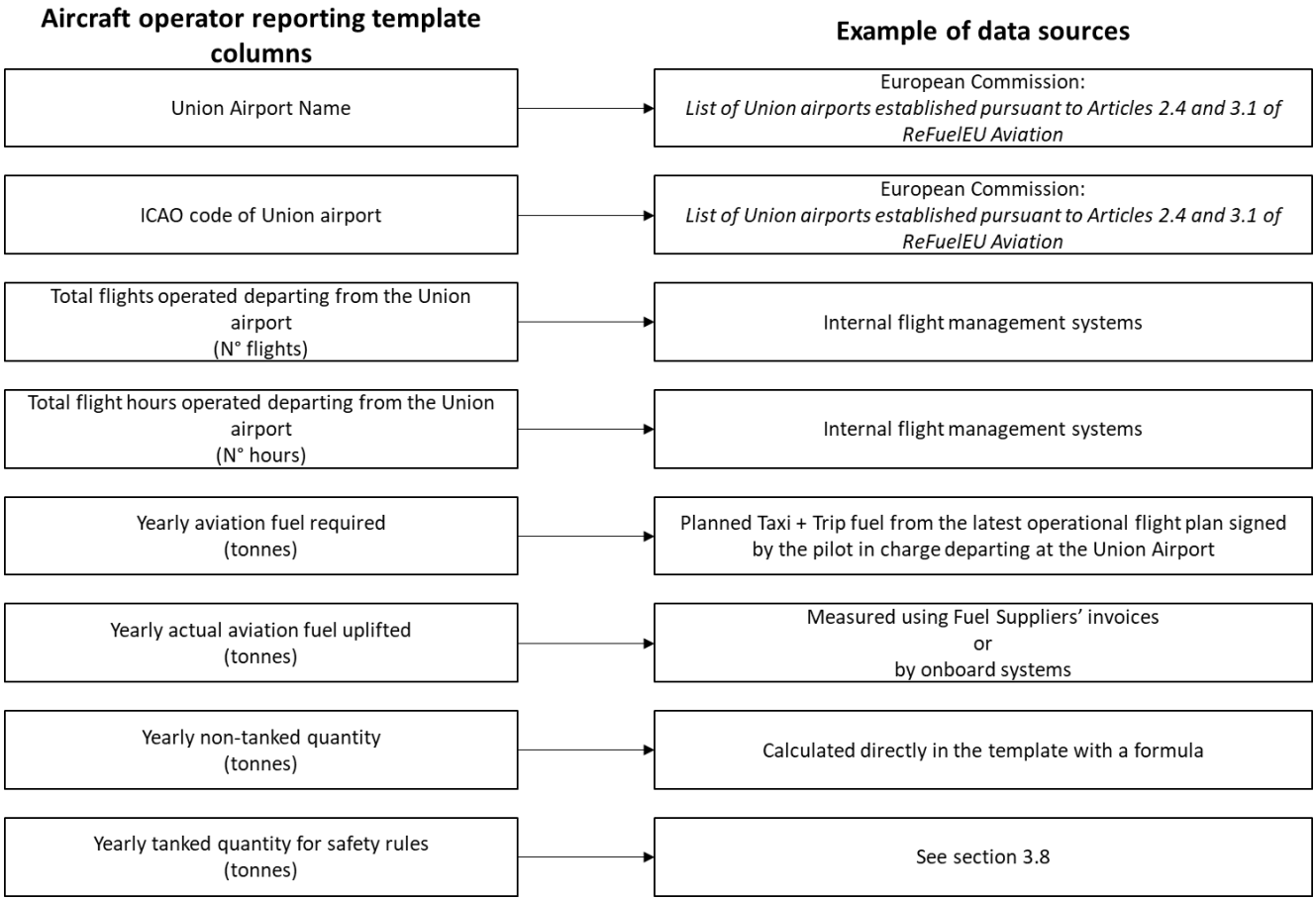


Figure 11 - Summary of data source for reporting template.

4 Tankering justification under Article 5(2)

As detailed in Article 5(2) of the RFEUA, "*an aircraft operator may fall below the threshold in paragraph 1 of this Article where necessary for reasons of compliance with applicable fuel safety rules*." As a means of justification, the aircraft operator can provide a quantity of fuel tanked (i.e. previously uplifted) that is duly justified and that will be used in the calculation of the quantity to be reported in column H.

4.1 Yearly tanked fuel justified (YTFJ)

The **yearly tanked fuel justified (YTFJ)** corresponds to the amount of fuel provided in the following fuel categories[25] of an OFP for an arriving and a departing flight from a Union airport:

- the minimum legally required fuel amount, minus (trip fuel + taxi fuel);
- plus the discretionary fuel;
- plus the extra fuel (understood under the EASA definition as any fuel planned for anticipated delays or specific operations constraints that can be predicted).

In addition to the normal commercial operations, a departing flight within the scope of RFEUA might exceptionally be preceded by an exceptional fuel uplift which is not related to a previous flight operation. In these very exceptional scenarios where the aircraft operator does not uplift in an Union airport due to that fuel previously tanked for a justifiable reason, that fuel quantity already in the tank would be considered as "tanked fuel justified" as long as the aircraft operator can provide supporting documentation

Example of tanked fuel from previous operations other than commercial flights
An aircraft coming out of assembly line or maintenance might have some fuel already tanked when coming into operations. This fuel quantity, if justified with the right documentation, would be considered and calculated as tanked fuel justified arriving in the Union airport.

4.2 Support documentation for the justification

As detailed in Section 4.1, the YTFJ is a combination of fuel categories calculated pre-flight and/or by the captain-in-command. Additional documentation could be requested by the verifiers and competent authorities to justify the amount.

Contingency, alternate, final reserve and **additional fuels** are all safety fuel categories resulting from a strict calculation defined by both EASA and ICAO. These are calculated pre-flight by fuel planning systems and approved by national authorities. They are reported on the OFP and reviewed by the captain in command. Considering the level of safety and the regular audits performed by authorities to ensure the quality and accuracy of the calculation, any amount of fuel falling under one of these categories and duly reported in the OFP or any other useful documentation should, in principle, be considered as justified.

The **discretionary fuel** is the quantity of fuel at the sole discretion of the captain in command. Pilots generally account for the latest weather changes, operational issues and other constraint that might result in additional burning for the flight in question. As detailed in the Commission guidelines, an aircraft operator must not instruct the pilot to uplift more aviation fuel in a specific airport for economic reasons and load it as

[25] Refer to Table 2.

discretionary fuel. Considering this, any fuel quantity duly reported under discretionary fuel in the OFP should, in principle, be considered as justified.

Extra Fuel is a category only defined by EASA and not by ICAO's Annex 6.In fact, EASA's AMC1.CAT.OP.MPA.181 defines extra fuel as the amount of fuel *for anticipated delays or specific operational constraints that can be predicted.* In other fuel schemes these amounts might fall under other categories. There is not always a need for extra fuel and the use of this category is always unique to specific circumstances. These amounts of fuel depend on the type of event occurring and can never be predicted. However, considering the predictable nature of the constraints, when an aircraft operator uses extra fuel, it should be able to justify it using supporting documentation detailing the context of the flight in question. This fuel category should, in principle, be considered as justified by any relevant documents as referred to in the Commission guidelines section 4.2 under ***Other Documents***.

Any other fuel that is hidden and/or does not belong to the abovementioned categories and that would not be justified would be considered as economic fuel tankering under RFEUA.[26]

Table 6 below details the minimum supporting documentation that could be required by verifiers and competent authorities to validate a claim to justify quantities of fuel under each of the categorisation, for the purposes of justifying non-tanked quantities of fuel in each Union airport for reasons of compliance with applicable fuel safety rules.

International categorisation	**ICAO Annex 6 fuel categorisation**	**EASA AMC fuel categorisation**	**RFUEA categorisation**	**Supporting Documentation**
Minimum legal fuel	Taxi fuel	Taxi fuel	Required fuel	At least the OFP
	Trip fuel[27]	Trip fuel		
	Contingency fuel	Contingency fuel	Yearly Tanked Fuel Justified under Art 5(2) YTFJ	
	Destination alternate fuel	Destination alternate fuel		
	Final reserve fuel	Final reserve fuel		
	Additional fuel	Additional fuel		
Commander's discretionary fuel	Discretionary fuel	Discretionary fuel		

[26] Refer to section 4.4 of Commission guidelines.

[27] Trip fuel as defined in the ICAO Annex 6 but excluding the fuel *accounted for the operating condition 4.3.6.2* of the Annex.

Extra fuel	Not a separated category but understood as fuel accounted for the operating conditions to 4.3.6.2 of ICAO Annex 6	Extra fuel		At least the OFP or any other document as defined in the Commission guidelines
Other fuel	N/A	N/A	Economic tankering	Not justifiable (i.e. amounts beyond the 10% buffer)

Table 6 - Summary table of supporting documentation to be provided per each fuel category.

4.3 Accounting for ALL flights departing from and arriving at a Union airport for the calculation of section 3.8

In Union airports where the aircraft operator falls below the 90% threshold, and therefore is reporting a positive yearly non-tanked quantity, the aircraft operator should report a yearly tanked quantity for fuel safety rules as per the calculation detailed in section 3.8 to justify the yearly non-tanked quantity. This calculation includes quantities for all arriving flights and departing flights from the Union airport.

No matter the uplifted/required fuel ratio per flight, ALL FLIGHTS are to be included in the calculation of column H.

In other words, in Union airports in which the operator is not meeting the 90% uplift, an aircraft operator should include all in-scope flights for the calculation of column H and not only the flights for which it has uplifted more than 90% of its required fuel. While the calculation, detailed in section 3.8, aims at identifying which quantity was tanked for safety reasons, it accounts actual fuel consumption leaving only unjustifiable quantities out (considered as economic fuel tankering).

Demonstration:
On a flight basis with no economic tankering and not considering the 90% threshold, the tanked quantity for safety rules is:

- positive if less fuel was uplifted than required; or
- negative if more fuel was uplifted than required.

If the aircraft operator excludes this second type of tanked quantities, the total yearly tanked quantity for safety rules reported in column H would only consider positive values. The quantity reported would be much higher than the yearly non-tanked quantities calculated in column G and the 10% buffer. It would enable an aircraft operator to uplift less at the Union airport and therefore hide economic tankering. By including all flights, a correction is directly applied to the tanked quantity for safety rules which prevents aircraft operators from over justifying in column H. Please refer to the illustrative example below (next page).

Example of a demonstration of compliant flight exclusion

The following example illustrates the risk of excluding compliant flights. It considers a simplified reality with no economic tankering and no Operational Fuel Divergence (OFD).

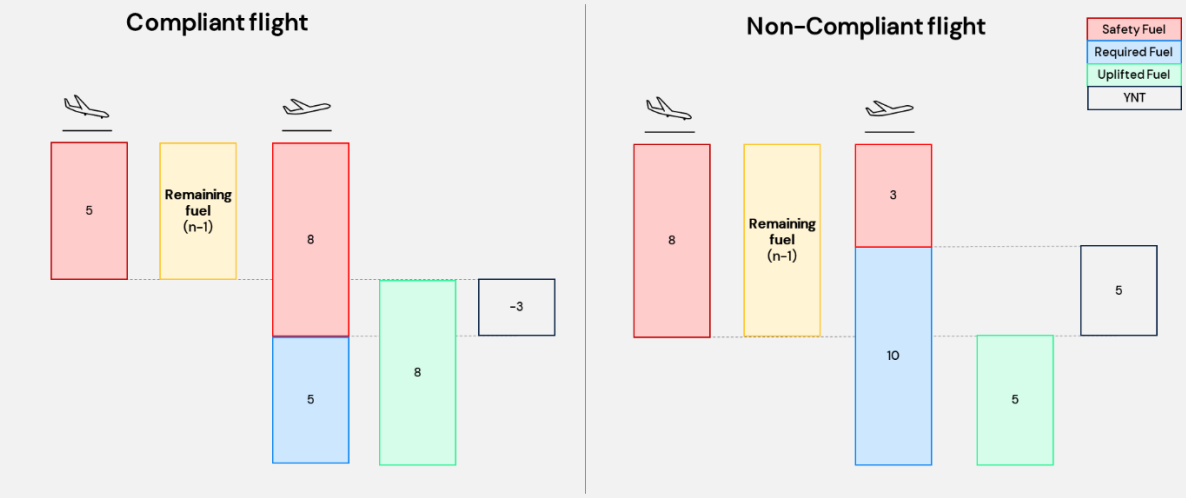


Figure 12: Illustrative example of compliant vs non-compliant flight inclusion in the justification calculation.

Table 7 is the corresponding reporting that the aircraft must perform for this illustrative example of a Union airport with two departing flights. Option 1 excludes all compliant flights while Option 2 includes ALL flights departing from this Union airport. As highlighted below, Option 1 enables the aircraft operator to demonstrate 5 tonnes in column H, which is highly above the YNT+10% buffer. This first option would enable an aircraft operator to tanker up to 4.5 tonnes of economic tankering justified through column H (3 tonnes + 1.5 tonnes of the 10% buffer). Option 2 provides the exact quantity of YNT+10% buffer which is the exact quantity to be justified. In this case, the aircraft operator has a 1.5 tonnes margin which corresponds to the 10% buffer provided by the Regulation.

	Union Airport Name	ICAO Code of Union Airport	Total flights operated departing from the Union Airport (N° flights)	Total flights hours operated departing from the Union Airport (N° hours)	Yearly aviation fuel required (tonnes)	Yearly actual aviation fuel uplifted (tonnes)	Yearly non-tanked quantity (tonnes)	Yearly tanked quantity fuel safety rules (tonnes)
	Union Airport	XXXX	2.00		10+5	8+5	2-1.5	
1	Union Airport	XXXX	2.00		15.00	13.00	0.50	5.00
2	Union Airport	XXXX	2.00		15.00	13.00	0.50	2.00

Table 7 - Example of Reporting template filled using the illustrative example.

5 Overview of the Fuel monitoring, reporting and verification process to meet RFEUA requirements

5.1 Monitoring

Throughout the reporting period (from 1 January until 31 December of the year preceding the reporting year) the aircraft operator is expected to monitor flights and related fuel information. At the end of the reporting period the aircraft operator has to provide to its Competent Authority and EASA a verified filled template that meets the requirements of Annex II of RFEUA (see section 5.3). Starting in 2025, the annual deadline for submitting the RFEUA verified report is 31 March of each year.

Accurate monitoring of flights and the required fuel information is needed to ensure that aircraft operators meet their reporting obligations. It is also required to properly justify the non-tanked quantities in Union airports at which they are not meeting the 90% uplift threshold of their yearly required fuel for flights from that airport. To perform accurate monitoring, the aircraft operator should implement a management system, with well-defined procedure and control activities to keep track of flights subject to RFEUA reporting requirements. This includes those flights that are performed by both owned and leased-in aircraft. It is the responsibility of the operator to ensure the accuracy, completeness, consistency and traceability of the information to be reported to its Competent Authority and EASA.

In addition, to ensure completeness of the data, ***both the data of flights from Union airports and the data from previous flights are expected to be monitored.*** This is particularly important for Union airports in which the 90% uplift requirement cannot be met due to fuel uplifted in the previous flights, regardless of whether those previous flights had departed in a Union airport or not and whether those flights are within the scope of the RFEUA reporting obligations or not.

> It is therefore recommended that fuel information for all flights departing or arriving at a Union airport of all aircraft used by the aircraft operator is duly monitored.

The aircraft operator is expected to implement a monitoring process where data is collected, processed and stored during the reporting period to ensure:

- Completeness of the aircraft operated;
- Completeness of the list of flights operated under the unique ICAO designator or aircraft registration numbers by airport pair with departure and or arrival in a Union airport during the reporting period;
- Accurate monitoring of planned trip and taxi fuel per flight as identified in the final version of the OFP of each flight;
- Accurate monitoring of the quantities of the other categories of fuel as reflected in the OFP of each flight;
- Accurate monitoring of actual fuel consumption (understood as block off – block on fuel) of all flights arriving at a Union airport;
- Completeness of the list of flights that are subject to RFEUA reporting requirements, excluding those out of the scope of RFEUA and those for which temporary exemptions have been granted under Article 5(3) RFEUA;
- Accurate monitoring of fuel uplift for flights subject to RFEUA reporting requirements;
- Appropriate use of density factor to fuel uplift values;

- Accurate monitoring of block time in hours per flight subject to RFEUA reporting requirements;
- Appropriate record of data gaps to provide information about the challenges faced during the first reporting exercise in 2025;
- Appropriate supporting documentation for any of the abovementioned data and the required documents that the aircraft operator would need to provide to the competent authorities to justify falling below the threshold in Article 5(1) RFEUA.

It is recommended that the aircraft operators use EUROCONTROL data, such as the EUROCONTROL ETS Support Facility Tool, to check their flight data against the data recorded in their internal systems. This cross-checking process will provide the verifier with confidence in the accuracy and completeness of the reported flights.

5.2 Recommendation of the development of a Monitoring Process

As part of the monitoring, reporting and verification process, an aircraft operator should be able to monitor and justify all the data mentioned previously for its RFEUA reporting duties. To do so, it is recommended to implement internally processes that enable the easy review of the different flights operated to and from a Union airport especially focusing on the sequence performed by a single aircraft.

Operationally speaking, the aircraft operator should ideally create automated queries feeding a master table file directly from its internal fuel or flight management / planning systems. This master monitoring table would include all flights within the scope of RFEUA and their previous flights. This tool would rapidly identify gaps and feed directly in the RFEUA ***template for aircraft operator*** necessary for reporting. Aircraft operators should record the information and data listed in the monitoring section in a timely and transparent manner and compile them on an annual basis to enable the verifier to verify compliance.

With the objective of harmonising the monitoring, reporting and verification process, EASA will publish an illustrative datasheet that aircraft operators can use as their raw data file before feeding in the RFEUA reporting template. An aircraft operator should be able to extract all the information from its digital system and create links to specific documents for the justifications required. Not only will this system benefit the aircraft operators, but it will also simplify the verifiers' tasks. Indeed, just like other environmental schemes, the verification bodies ensure the consistency and accuracy of the reported data. Working through this type of master datasheet enables full transparency and understanding of the actual operations.

Each reporting year, before or on the 31st March at the latest, the aircraft operator must submit both the RFEUA report and the corresponding verification report to the competent authority of the administering Member State. It is recommended to begin the verification process within the reporting period, rather than waiting until it has ended. This approach makes it easier to ensure conformance and compliance, manage issues promptly, and address any data gaps, inaccuracies, or non-conformities found during verification.

5.3 Verification

Article 8(3) RFEUA states that "the report shall be verified by an independent verifier in accordance with the requirements set out in Articles 14 and 15 of Directive 2003/87/EC, and the implementing acts adopted on the basis thereof." In other words, the verification process and accredited verifiers for the purposes of RFEUA are governed by the rules set in the EU Emissions Trading System (EU ETS) and particularly those established for the aviation sector. This means that any verification body accredited by a National Accreditation Body according to the Implementing Regulation (EU) No. 2018/2067 of 19 December 2018 on the verification of data and on the accreditation of verifiers pursuant to Directive 2003/87/EC, is allowed to verify reports under RFEUA, without the need for an extension of its accreditation scope. This ensures a harmonised and consistent approach to verification across the EU and reduces the administrative burden for both verifiers and aircraft operators.

Verification involves an independent assessment of the data sources that have been used to collect, process and store during the reporting period and the data quality in the aircraft operator's report. Verification of the RFEUA report provides reasonable assurance that the reported data is free from material misstatements and material non-conformities. In addition, verification is an essential instrument in providing confidence to the competent authority.

Once the verifier has concluded the verification, it issues a verification report to the aircraft operator stating whether the report is verified as satisfactory or not.

5.3.1.1 Specific guidance for verifiers

- The verifiers should check the control activities that the aircraft operator has in place to identify which flights fall under the responsibility of that particular aircraft operator and that the data related to that flight is accounted for in its report. The verifier should test the way that data from leased-in or leased-out aircraft are input in the aircraft operator's systems to ensure that data on the leased aircraft is documented (collection of data that is regulated through leasing agreements).
- The verifier must check the completeness of the flights and whether flights have been attributed to the calendar year according to the time of departure measured in coordinated universal time and to the correct reporting period.
- The verifier should understand how to interpret flights that are out of the scope of RFEUA and to check exempted routes for which a temporary exemption has been granted, to avoid them from being included in the report.
- The verifier should be aware of the need to monitor and verify the fuel information of the non RFEUA flights. The fuel information of, not only those departing from a Union airport, but also flights landing in a Union airport, for which the aircraft operator is responsible, should be considered, for the justification of tanked quantities for safety rules.
- The verifier should closely examine the specific source of data used to determine the fuel uplift of flights from Union airports and that density is correctly applied.
- The verifier should check the methodology and procedures used to monitor the fuel consumption understood as Block-off minus Block-on of all flights departing or landing in a Union airport.
- The verifier should assess the frequency of data gaps occurring and the control activities implemented to avoid these data gaps.

- When verifying the data, the verifier should cross-check with the EUROCONTROL data from the EU ETS Support Facility or other EUROCONTROL data. This can be done by using the EU ETS Support Facility assuming access is authorised and recognising that EUROCONTROL data may not always be complete.

5.4 Overview of data gaps

Data gaps arise when an aircraft operator lacks the necessary information for determining fuel information as required by RFEUA reporting obligations on one or more flights. These gaps can result from various issues such as irregular operations, data feed problems, or system failures. For instance, there might be a missing OFP or fuel invoice with no alternative source available. It could also be from inaccuracies or unavailability of flight details. Additional data gaps can be identified by verifiers when carrying out verification activities.

If the primary data source is missing, a secondary source should be used instead to record the necessary fuel data, which must provide an equivalent measurement to the primary source and be recorded at a similar time. For verification purposes, the aircraft operator should provide an explanation of what primary sources and secondary sources have been used.

In the absence of both primary and secondary data during the first reporting year (2025), the aircraft operator should provide the verification body with a detailed explanation of the primary and secondary data that is missing. If there are data gaps that exceed a 5% threshold of total reportable flights and their previous flights, the aircraft operator should state the percentage of data gaps and engage with the competent authority to address the issue. The absence of data does not exempt the aircraft operator from fulfilling its reporting obligations.

The verification body must assess whether the aircraft operator's explanations are sufficiently detailed to determine if the data gaps were unavoidable. Additionally, the competent authority would evaluate what measures have been implemented to reduce the number of data gaps to less than 5%.

Aircraft operators should submit to their competent authority and their verifier, an improvement report during the following year to outline the steps taken by them to reduce the data gaps and improve the accuracy of their data and systems.

5.5 Requirements for data retention

The Regulation imposes on aircraft operators the burden of proof to justify to the competent authorities and EASA their compliance with the requirements under Article 5(1) and (2) RFEUA. Aircraft operators need to therefore assess for how long it is advisable to keep the relevant justifying documents, taking into consideration aspects such as the possibility of administrative or court procedures. Aircraft operators should ideally keep the justifying documents for a minimum of four years (i.e. reporting year + three years of data retention). This period may vary between Member States as national rules on enforcement applicable to the sector may prescribe different timelines. Member States should consider the data retention recommendation provided in this section when laying down the rules on penalties applicable to infringements of this Regulation as established in Article 12(1) RFEUA (see Section 4.3 of Commission guidelines on Article 5).