



EU ETS Monitoring and Reporting – Quick guide for aircraft operators

Updated for EU ETS Phase 4 – Version of 1 March 2022

This document is part of a series of documents provided by the Commission services for supporting the implementation of Commission Implementing Regulation (EU) 2018/2066 on the monitoring and reporting of greenhouse gas (GHG) emissions pursuant to Directive 2003/87/EC of the European Parliament and of the Council (the [MRR](#))¹. This document also covers requirements of [CORSIA](#)² to the extent these are included in the [MRR](#).

The guidance represents the views of the Commission services at the time of publication. It is not legally binding.



This quick guide for aircraft operators builds on the suite of guidance documents already available³ (see [overview](#) at the end of this guide) with the aim of further supporting operators in fulfilling their emissions monitoring obligations under the EU ETS by providing a step-by-step summary of the main requirements that operators need to take into account.

Links to other documents including more detailed guidance on specific issues are provided throughout this document. You can access these other documents by clicking on the [links](#) where they are highlighted.

The original version of this quick guidance document was unanimously endorsed by the representatives of the Member States of the Climate Change Committee (CCC) by written procedure in April 2017. All updates made to this document in March 2022 take into account the written comments of the informal Technical Working Group on EU ETS Monitoring, Reporting, Verification and Accreditation convened under the WGIII of the CCC and are in line with the updates of other guidance documents endorsed by the CCC.

¹ http://data.europa.eu/eli/reg_impl/2018/2066/2022-01-01

² ICAO's Carbon Offsetting and Reduction Scheme for International Aviation

³ https://ec.europa.eu/clima/eu-action/eu-emissions-trading-system-eu-ets/monitoring-reporting-and-verification-eu-ets-emissions_en

STEP 1: OBLIGATIONS UNDER THE EU ETS?

Before you continue with the next steps, you should make sure first that you are an aircraft operator⁴ whose aviation activities fall under the scope of the EU ETS. As an aircraft operator you have the most direct control over the type of aircraft in operation and the way in which they are flown. You are covered by the EU ETS if you carry out aviation activities as outlined in Annex I of the [EU ETS Directive](#). Details on the scope of the EU ETS are given in chapter 3.1 of [MRR GD2](#), including what is meant by “full scope” (the activities according to Annex I of the [EU ETS Directive](#)) and “reduced scope” (only flights within the European Economic Area (EEA)⁵).

In general, you have obligations under the EU ETS unless you are either

- operating only flights of aircraft with a maximum take-off weight of less than 5 700 kg, or
- a commercial air transport operator operating less than 243 flights in each of three consecutive four-month periods or your annual fossil emissions are lower than 10 000 t CO₂, or
- a non-commercial operator with annual fossil emissions lower than 1 000 t CO₂.

Note that there are further exemptions of certain flights. You are advised to read sections 3.1 and 3.2 of [MRR GD2](#) before deciding if you are included in the EU ETS or not.

Possible further obligations

- If you have an Air Operator's Certificate (AOC) or other operating license issued by an EEA country and carry out international⁶ flights emitting more than 10 000 t CO₂ per year, you have to fulfil obligations under [CORSIA](#). For exact definition of the scope please see sections 3.1.5 and 3.3.3 of [MRR GD2](#).
- If you have obligations under the EU ETS and perform flights to and from Switzerland, you likely also have an obligation under the [CH ETS](#). For administration of aircraft operators with obligations under both, the EU ETS and the CH ETS, the ‘one-stop-shop’ principle applies, i.e. you are administered by only one competent authority. For details see sections 3.1.3 and 3.3.2 of [MRR GD2](#).
- If you have obligations under the EU ETS and perform flights to and from the UK, it is likely that you also have an obligation under the [UK ETS](#). For details see section 3.1.4 of [MRR GD2](#).



Result: If the above results in you having no obligations, you can stop reading here⁷. If you conclude that your aviation activities fall under the scope of the EU ETS, CORSIA or the CH ETS, you are now one of the four main actors of the ‘annual compliance cycle’, an aircraft operator. The compliance cycle (picture below) is described in more detail in chapter 4 of [MRR GD2](#).

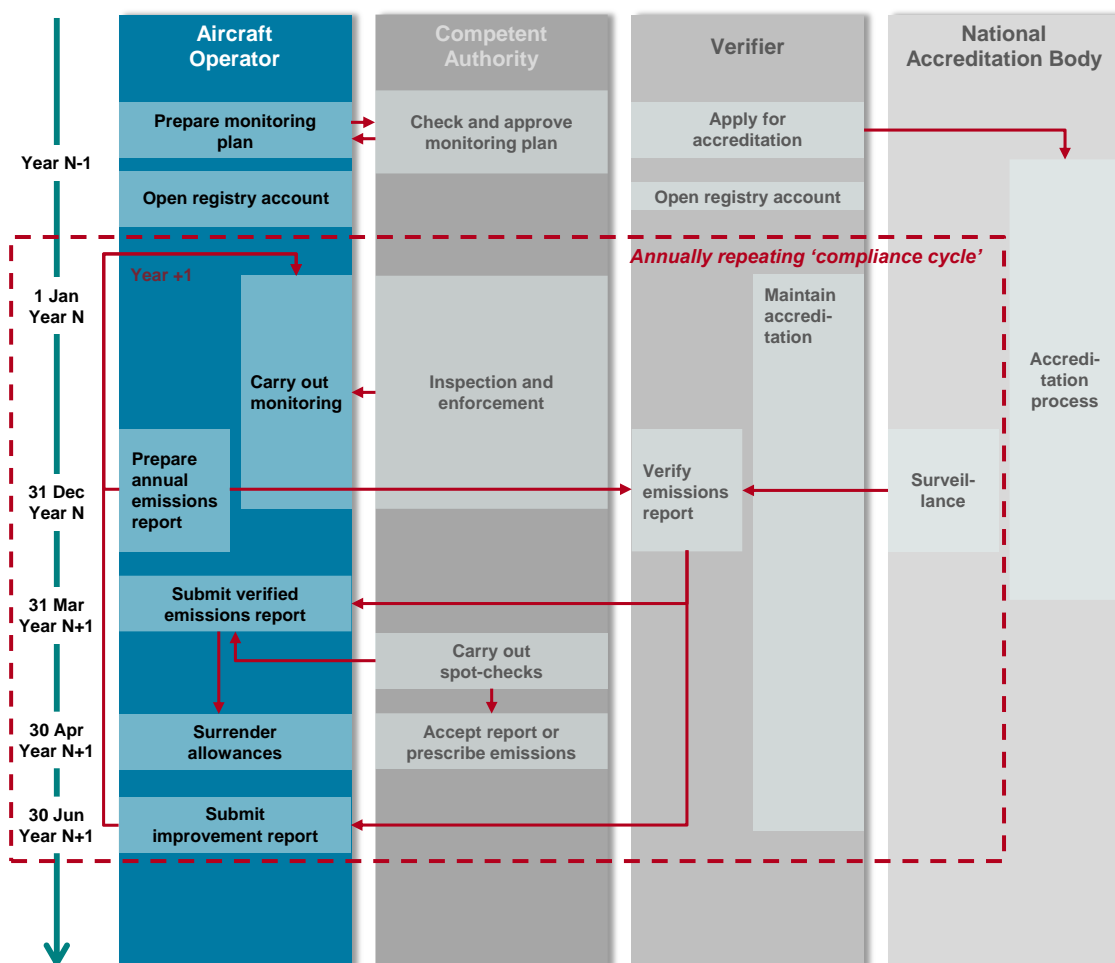
Monitoring, Reporting and Verification (MRV) of emissions play a key role in the credibility of any emission trading system, ensuring that ‘a tonne emitted is a tonne reported’. For this reason, Article 11 [MRR](#) requires that you [prepare a Monitoring Plan \(MP\)](#) that is approved by your competent authority.

⁴ The term ‘aircraft operator’ is defined in Article 3(o) and further guidance can be found in section 3.2 of the MRR Guidance for aircraft operators ([MRR GD2](#)).

⁵ I.e. EU Member States and Iceland, Norway and Liechtenstein.

⁶ Flights which depart from and arrive at different countries.

⁷ Please note that if you carry out an Annex I activity anytime in the future, you will have obligations under the EU ETS and you are recommended to continue reading.



Year N-1 **STEP 2: PREPARING A MONITORING PLAN (MP)**

Like a recipe in a cooking book or the management handbook for a certified quality management (QM) system, the MP serves as manual for the operator's monitoring tasks. Further information on timelines is provided in section 4.4.1 of [MRR GD2](#). A detailed step-by-step guide on how to prepare an MP is provided in chapter 6 of [MRR GD2](#). Furthermore, the Commission has published an electronic [MP template](#) and [data exchange format](#) covering all information required by Annex I [MRR](#).

Note: These templates are usually translated, and Member State specific versions of the MP template are made available. In some Member States dedicated IT systems are used instead. Therefore, please consult the website of your Competent Authority (CA) or contact the CA on which format to use before proceeding further.

Step 2.1: Find your administering Member State

Pursuant to Article 18a [EU ETS Directive](#) you are assigned to only one administering Member State in order to ensure an efficient implementation of the EU ETS. This is either the Member State which issued your AOC (if applicable), or the MS to which most of your emissions are assigned. The European Commission publishes preliminary and final lists of administering Member States regularly on its [aircraft operator website](#). Aircraft operators for which no state is assigned in the list of administering Member States shall contact the [European Commission](#). You can find further guidance in section 3.3 of [MRR GD2](#).

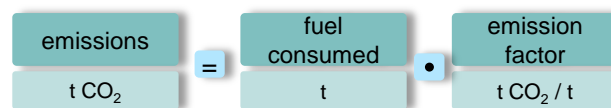
Step 2.2: Source streams, emission sources and definition of a flight

First, you should ensure that you are familiar with the terms 'source streams' (fuels) and 'emissions sources' (individual aircraft) and how 'flights' are defined because you will need them for the next steps below. These and other related terms are legally defined in Article 3 [MRR](#) and technical guidance is provided in sections 5.2 and 5.4.2 of [MRR GD2](#).

For your monitoring plan you have to provide a list of emission sources (i.e. the aircraft in your fleet), and a procedure for keeping this list up to date for purchase, sale and leasing of aircraft throughout the reporting year. Furthermore, section 3.1 of [MRR GD2](#) provides you with guidance on the scope of included aviation activities.

Step 2.3: General monitoring approach

The principles of monitoring are simple. Aircraft operators determine CO₂ emissions using a simplified version of the standard methodology for combustion emissions applying the following formula. More guidance is provided in section 5.4 of [MRR GD2](#).



This calculation is to be carried out in principle for each individual flight. Furthermore, for the annual emissions report an aggregation of emissions per aerodrome pair and per country of departure and arrival is also to be prepared. Aircraft operators should ensure that their electronic data processing systems are capable of ensuring these aggregations.

If MRV is that simple, why does the [MRR](#) have so many pages and why is there so much guidance?

There are three main reasons:

- In addition to the general rules, it contains specific provisions for 23 different energy-intensive industrial activities (see [Annex I](#) of the EU ETS Directive)
- It contains detailed provisions for the required quality levels of the different parameters depending on the category of the installation/source stream/emissions source as well as several simplifications to ensure cost-effectiveness, (e.g. [step 2.5](#))
- It contains additional provisions to establish effective data quality control systems ([step 2.7](#)).

Step 2.4: Determine the amount of fuel consumed

The [MRR](#) allows two different approaches for aviation (Method A and Method B), see section 1 of Annex III of the [MRR](#) for determining fuel consumption of a flight.

$$\text{Method A: } F_{N,A} = T_N - T_{N+1} + U_{N+1} \quad \text{Method B: } F_{N,B} = R_{N-1} - R_N + U_N$$

$F_{N,A \text{ or } B}$ Fuel consumed for the flight N determined using method A or B [t]

$T_{N(+1)}$ Amount of fuel contained in aircraft tanks once fuel uplift for the flights N and N+1 is complete [t]

$R_{N(-1)}$ Amount of fuel remaining in aircraft tanks at the end of the flights N-1 and N, i.e. at block-on before (R_{N-1}) / after (R_N) the flight N, expressed in [t]

$U_{N(+1)}$ Fuel uplift for the flight considered, expressed in [t]

Density: If the fuel amount is determined in units of volume (e.g. litres, US gallons or m³), you have to determine the fuel density using 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 (measured) density value (see section 5.4.5 of [MRR GD2](#) for further guidance).

Step 2.5: Small emitters



You are a small emitter (Article 54(1) [MRR](#)) if:

- you are operating fewer than 243 flights per period for three consecutive four-month periods, or
- you are operating flights with total annual emissions lower than 25 000 tonnes CO₂.

Further guidance for small emitters, in particular how Eurocontrol's [small emitters tool](#) and [ETS Support Facility](#) could help you simplifying your monitoring approach for estimating fuel consumption and emissions, is provided in sections 5.6 to 5.9 of [MRR GD2](#).

Step 2.6: Treatment of biofuels



How do I need to treat fuels or materials containing biomass?

For the purpose of the EU ETS, Article 54 [MRR](#) describes how you have to determine the biomass fraction of biofuels. Further guidance on biomass is provided in sections 5.4.7 and 5.4.8 of [MRR GD2](#). Article 38(5) [MRR](#) requires that biomass has to comply with certain sustainability and GHG savings criteria, the '[RED II](#) criteria' (applicable as of 2022, with a possible exception in the first year)⁸. The Annex (section 7.1) of [MRR GD2](#) describes how the [RED II](#) criteria are applied.



Result: Up to this section you should know for each of your [source streams](#) and [emission sources](#) and for each parameter (fuel quantity, emission factor, etc.) by which methodology you will determine them.

Step 2.7: Data flow, risk assessment and control activities

Article 58 [MRR](#) requires that you put in place written procedures on data flow activities, describing 'who takes data from where and does what with it'. Article 59 [MRR](#) requires you to establish an effective control system. This consists of two elements:

- a risk assessment, and
- control activities for mitigating the risks identified.



This is the key management system for you to identify what might go wrong and how you prevent it from happening in the first place.

Article 12(1)(b) [MRR](#) requires that you submit the results of your risk assessment to the CA as a supporting document to the MP. Further guidance on those aspects is provided in section 6.3 of [MRR GD2](#) and in [MRR GD6](#). The Commission has also provided a risk assessment [tool](#) and an [example risk assessment](#)⁹.



If you are a small emitter, Article 55(3) [MRR](#) exempts you from the requirement to submit the result of the risk assessment to the CA. You will still find it useful to carry out a risk assessment for your own purpose, e.g. making it available to your verifier (Article 10 [AVR](#)).

Furthermore, you have to establish written procedures for several other purposes and to keep records of all relevant data and information for at least 10 years (Article 66(1) [MRR](#)).

⁸ Member States may consider the RED II criteria as fulfilled during a transitional period from 1 January to 31 December 2022.

⁹ Although this example is focussed on stationary installations, you may still find it useful to understand the underlying concept of a risk assessment.

Step 2.8: Get approval of MP



Once you have completed all sub-steps under Step 2, you have to submit the MP and all necessary additional documentation to the CA and seek their approval.

20 days
after
approval

STEP 3: OPEN A REGISTRY ACCOUNT

The Union Registry operates in a similar way as an internet bank account and is hosted and managed by the European Commission. It records allowance allocations for operators, annual verified emissions, allowance transfers and surrenders of allowances.



You must apply for a Union Registry Aircraft Operator Holding Account within 20 working days from approval of the MP (Article 15(1) [Registry Regulation](#)). You will find the links to the national administrator of your administering Member State, including contact points and further information, on [DG CLIMA's registry website](#).

1 Jan
Year N

STEP 4: CARRY OUT MONITORING



Note: Steps 1 to 3 only need to be done once, unless there are changes to the MP (see below). From this step onwards, activities are carried out annually as part of the 'compliance cycle'.

As stated at the beginning of [Step 2](#), the MP is like a QM handbook. Therefore, carrying out the emissions monitoring simply requires that you follow the rules and requirements of your approved MP and the [MRR](#).

What should I do if there are changes during the year?

Section 6.5 of [MRR GD2](#) provides guidance on what significant and non-significant changes are, when they lead to updates of the MP and how you must notify the CA. This reflects the provisions of Articles 14 to 16 [MRR](#) on how to keep your MP up to date.

What should I do if I have any data gaps during the year?

Sometimes data gaps (Article 66 [MRR](#), see section 5.7 of [MRR GD2](#)) might occur during the year. That Article allows in particular that the same tool as for small emitters (see [step 2.5](#)) may be used as a last resort for this purpose, including for non-small emitters. The methodology to be used for filling data gaps must be documented in the MP.

What else is required throughout the year?

Implement the agreed procedures in your monitoring plan and comply with Articles 60 to 65 [MRR](#). Furthermore, Article 69(1) [MRR](#) requires you to regularly check whether the monitoring methodology applied can be improved.

28 Feb
Year N

STEP 5: OBTAINING ALLOWANCES

Where do I get allowances from?

There are three options:

- Free allocation: The CA allocate free allowances to operators covered by the EU ETS every year by 28 February, based on a benchmark (t CO₂ per t-km) calculated by the European Commission.

- Auctioning: You can find further details on [DG CLIMA's auctioning website](#).
- Allowances on the market: You can purchase and sell allowances from and to other EU ETS participants or other traders. There is no list of recommended traders or market places available, but on the internet it will be simple to find some institutions or consultancies which offer support. Please note that some aspects of trade in EU ETS allowances are covered by financial markets regulations (e.g. prevention of insider dealing). For details see [DG CLIMA's market oversight website](#).

End of
Year N

STEP 6: PREPARING AN ANNUAL EMISSIONS REPORT

At the end of the year (in fact before) you should be preparing to submit your Annual Emission Report (AER) to your verifier, in order that the verification can be completed in time for you to file your report to the CA by 31 March¹⁰ of the coming year.

Aircraft operators (both commercial and non-commercial ones) emitting less than 25 000 tonnes CO₂ under “full scope” per year, or less than 3 000 t CO₂ per year under “reduced scope”, can choose an alternative to third-party verification. The alternative involves using data from Eurocontrol's [ETS Support Facility](#), which is derived from the [small emitters tool](#), without any modification (see section 5.9 of [MRR GD2](#)). If your MP is approved by your CA to make use of this option, you can skip to step 7.



Step 6.1: Engage an *accredited* verifier

Between January and March verifiers will be very busy, so make sure you already hire a verifier well before this period¹¹. You should also be aware that the verifier needs time already in the pre-contract stage to allocate budget and resources (see [AVR EGD I](#), especially chapter 3.2.1 and the [quick guide on verification for aircraft operators](#) for further details).

How can I find an accredited verifier?

The website of the European Co-operation for Accreditation (EA) includes a [list of links](#) to all national accreditation bodies (NABs). They, in turn, publish lists with accredited verifiers. Note that you may choose verifiers accredited in any EU ETS Member State or country. You can only contract a verifier whose scope of accreditation covers your activity (i.e. aviation). As the responsible NAB can withdraw or suspend accreditation or reduce the accreditation scope as consequence of requested changes or the verifier's non-compliance, you must check if the verifier's scope of accreditation is valid for the period of the required verification.

Step 6.2: Get the latest version of the AER template

The Commission has provided an [AER template](#) and [data exchange format](#) on their website, which is also to be used to report on emissions covered by the CH ETS and by CORSIA. Make sure you have the latest version or what is required by your specific CA.

Note: There are usually translated and Member State specific versions of the AER template made available. In some Member States dedicated IT systems are used which may use web forms instead of the Excel template. Therefore, please consult your CA's website or contact your CA on which format to use before proceeding further.

¹⁰ Note that the CA may set an earlier deadline (see step 7).

¹¹ Each year by 15 November at the latest, the verifier has to notify its planned verifications to the National Accreditation Body to enable it to set-up its work programme. Therefore, engaging verifiers well before that date is preferable.

Step 6.3: Complete the AER report

At the end of the monitoring year (31 December), complete the AER and send it to your verifier. The verifier will subsequently prepare a verification report (VR), attach it to your AER and send it back to you. Where IT systems with web forms are used, the VR will be entered in such form.

Step 6.4: Interaction with the verifier

Already at the pre-contract stage you have to supply the verifier with all relevant information which allows him to understand the scope of your operation and monitoring methodology. More detailed data is required during actual verification (see section 3.2 of [EGD 1](#)). In principle the verifier needs access to *all* data and information required to fully understand the primary monitoring data and their aggregation in the final AER (Article 10 [AVR](#)). Note that you have to make sufficient time of relevant staff available to the verifier during verification.

What should I know about the verifier's work?

For better understanding of the verifier's work, his responsibilities and requirements, you are invited to refer to the separate [quick guide on verification for aircraft operators](#).

The verifier carries out verification applying the following steps: "strategic analysis" (to build-up understanding of the aircraft operator's monitoring plan), "risk analysis" which leads to a verification plan, "process analysis" (detailed verification), and reporting (completion of a full internal record of the verification and the signed-off verification report returned to the aircraft operator). The verifier will usually have to carry out a site visit¹². Whenever the verifier finds misstatements (errors, misrepresentations and omissions) in your reported data, non-conformities with the monitoring plan or non-compliances with the [MRR](#), you have to correct these (Article 22 [AVR](#)). In some cases this will require that you notify or gain approval from the CA (e.g. regarding necessary update of the monitoring plan).

Is it possible to have any conflicts with verifiers, and if yes, how should I proceed?

If you have concerns about the performance of your verifier, e.g. concerning competence or impartiality, you can file a complaint to the verifier. The verifier must have internal procedures to address these complaints. If you are not satisfied with the verifier's response, you can also submit a complaint to the NAB that has accredited the verifier.

31 Mar
Year N+1

STEP 7: SUBMIT AER TO CA



Deadline: The verified AER for emissions occurring during calendar year N, has to be submitted to the CA by 31 March N+1 at latest, together with the VR. Furthermore, the verified emissions figure must be entered in the verified emissions table of the Registry.

Note: Some Member States have set earlier deadlines, but 28 February is the earliest that a Member State may choose. Therefore, please consult your CA's website or contact your CA in order not to miss the deadline that applies in your case.

30 Apr
Year N+1

STEP 8: SURRENDER ALLOWANCES

Article 12(3) of the [EU ETS Directive](#) requires that you annually by 30 April surrender from your Registry account the number of allowances equal to the total emissions in your verified AER, which has been submitted to the CA in [Step 7](#). Further guidance can be obtained from the Registry administrator of the administering Member State.

¹² For aircraft operators, the site is defined as 'where the data is', e.g. the company headquarter. Under some specific conditions (Articles 31 and 32 [AVR](#)) you can request the CA to waive the requirement of a site visit. For details see section 3.2.7 of [EGD I](#) and [KGN II.5](#).



Deadline: The deadline for surrendering allowances for emissions occurring in calendar year N is 30 April N+1 (12:00 midnight of the administering Member State).

30 Jun
Year N+1

STEP 9: SUBMIT IMPROVEMENT REPORT (IR)

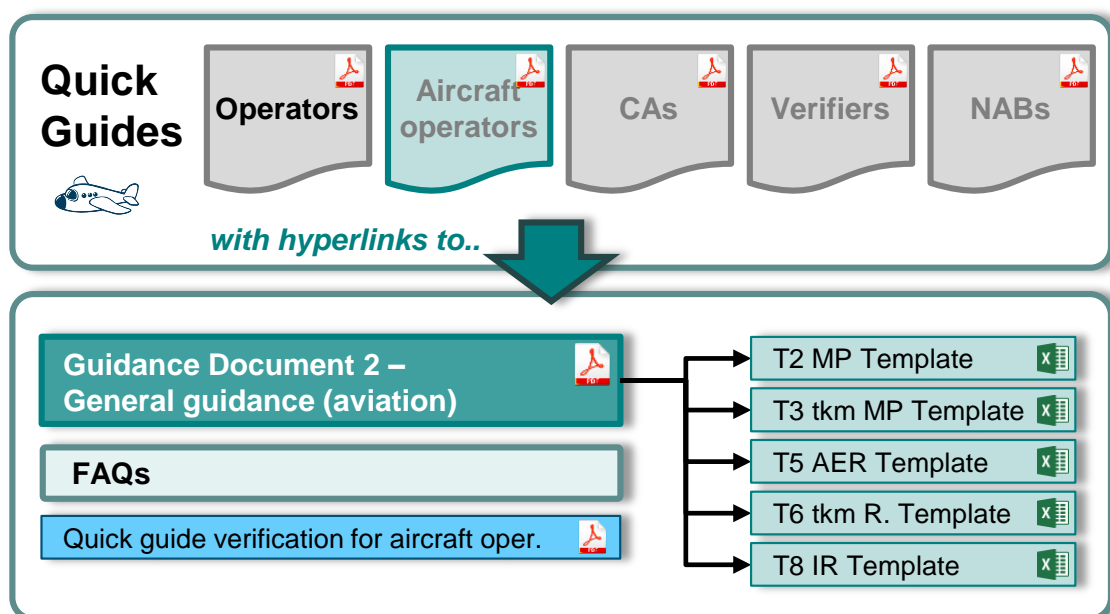
Article 69 [MRR](#) requires that you submit to the CA an improvement report if your verifier stated in the VR outstanding non-conformities or recommendations for improvements (Article 69(4) [MRR](#)). You must submit the report to the CA by 30 June each year the verifier made such statements. If you have already submitted an updated MP to the CA which addresses the recommended improvements, no additional improvement report is required.

To this end, the Commission has provided an [IR template](#) and [data exchange format](#). You can also find further guidance in section 6.6 of [MRR GD2](#).

Note: There are usually translated and Member State specific versions of the IR template made available. In some Member States dedicated IT systems are used. Furthermore, Article 69(1) [MRR](#) allows Member States to set a later deadline than 30 June, but by 30 September the latest. Therefore, please consult your CA's website or contact your CA before proceeding further.

OVERVIEW OF AVAILABLE GUIDANCE MATERIAL

The picture below provides an overview of all available MRR guidance material on the Commission's [website](#), referenced within this quick guide and relevant for aircraft operators. It furthermore displays the relationship between documents. Please note that all AVR documents mentioned within this quick guide can be found on the [website](#) as well. In addition to that, you may also find the Commission's aviation [website](#) useful.



ABBREVIATIONS

AER	Annual Emissions Report
AOC	Air Operator Certificate
AVR	Accreditation and Verification Regulation: Implementing Regulation (EU) 2018/2067
CA	Competent Authority
CH ETS	Swiss Emission Trading System
CORSIA	Carbon Offsetting and Reduction Scheme for International Aviation set up by ICAO
EEA	European Economic Area (EU-27 plus EFTA countries Norway, Iceland and Liechtenstein)
EU ETS	EU Emission Trading System
GD	Guidance Document published on the Commission's website
IR	Improvement Report
MP	Monitoring Plan
MRR	Monitoring and Reporting Regulation: Implementing Regulation (EU) 2018/2066
NAB	National Accreditation Body
QM	Quality Management
RED II	Renewable Energy Sources Directive (recast): Directive (EU) 2018/2001
t-km	tonne-kilometre
UK ETS	UK Emission Trading System
VR	Verification Report