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DIRECTORATE-GENERAL

CLIMATE ACTION

Directorate C - Climate strategy, governance, and emissions from non-trading sectors

CLIMA.C.2 - Governance & Effort Sharing

EU ETS Monitoring and Reporting – Quick guide for stationary installations

Version of 9 November 2017

This document is part of a series of documents provided by the Commission services for supporting the implementation of Commission Regulation (EU) No. 601/2012 of 21 June 2012 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.

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



This quick guide for stationary installations builds on the suite of guidance documents already available² (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.

This quick guidance document takes into account the discussions within meetings of the informal Technical Working Group on EU ETS Monitoring, Reporting, Verification and Accreditation convened under the WGIII of the Climate Change Committee (CCC), as well as written comments received from stakeholders and experts from Member States. This quick guide was unanimously endorsed by the representatives of the Member States of the Climate Change Committee by written procedure in April 2017.

¹ <http://eur-lex.europa.eu/eli/reg/2012/601>

² https://ec.europa.eu/clima/policies/ets/monitoring_en#tab-0-1

STEP 1: OBLIGATIONS UNDER THE EU ETS?

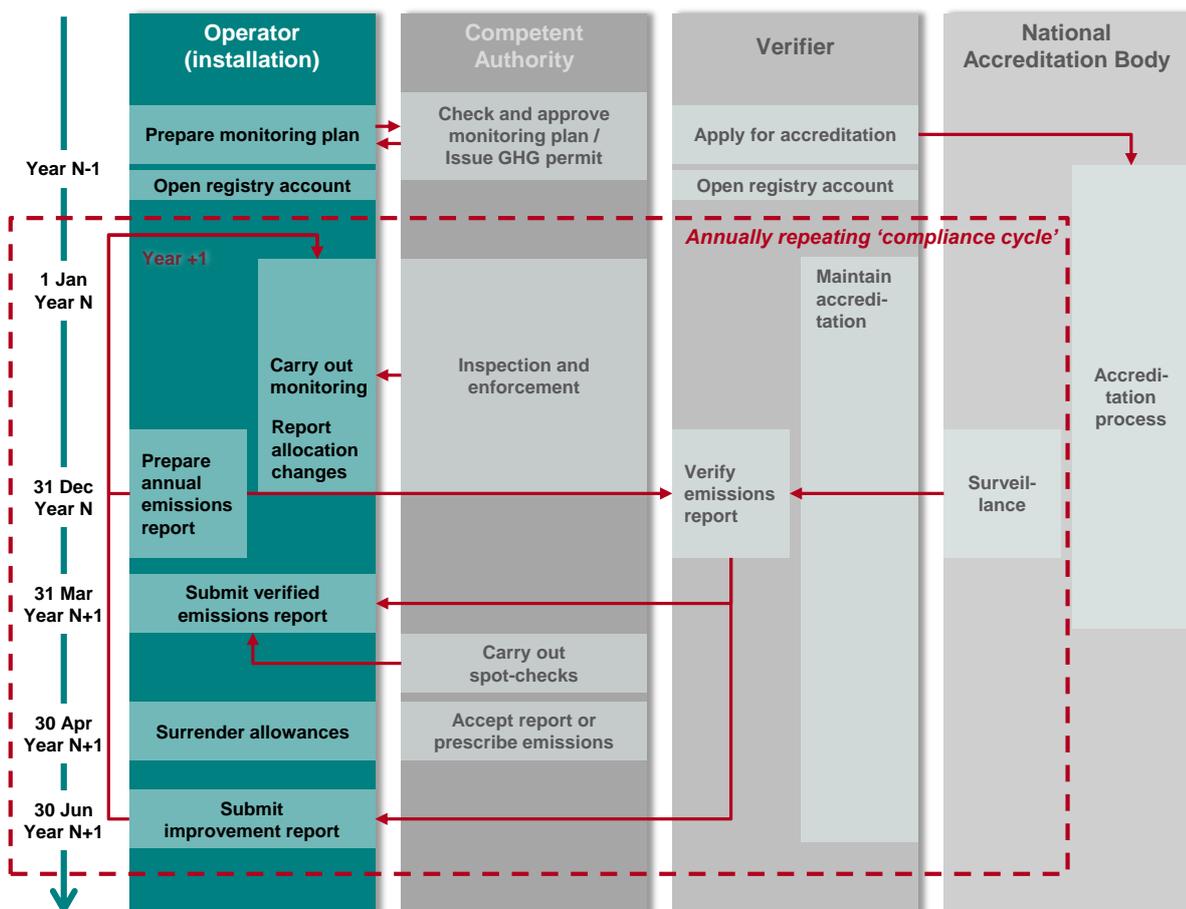
Before you continue with the next steps, you should make sure first that your installation falls under the scope of the EU ETS. You are covered by the EU ETS if your installation carries out at least one Annex I activity of the [EU ETS Directive](#). There are special rules for the most common activity 'combustion of fuels >20MW' and you are advised to carefully read the [Guidance on Interpretation of Annex I EU ETS](#) before deciding if your installation should be included in the EU ETS or not. This guidance will also be most useful in determining the boundaries of your installation.



Result: If the answer is no, you have no obligations and you can stop reading here.

If you conclude that your installation falls under the scope of the EU ETS, you are now one of the four main actors of the 'annual compliance cycle', an operator. The next thing you need is a GHG permit and to monitor and report GHG emissions (Articles 4, 5 and 14 of the [EU ETS Directive](#)).

The compliance cycle (picture below) is described in more detail in chapter 3 of [MRR GD1](#).



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 and as part of being granted a GHG permit, Article 11 [MRR](#) requires that you [prepare a Monitoring Plan \(MP\)](#) that is approved by your competent authority.

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. A detailed step-by-step guide on how to prepare an MP is provided in chapter 5 of [MRR GD1](#). Furthermore, the Commission has published an electronic [MP template](#) and [data exchange format](#) covering all information required by Annex I [MRR](#).

Note: These are usually translated and Member State specific versions of the MP template made available. In some Member States dedicated IT systems are being used. 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: Source streams, emission sources and related terms

First, you should ensure that you are familiar with the terms source streams and emissions sources 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 section 4.2 [MRR GD1](#).

Step 2.2: Define installation boundaries

The installation boundaries should be clear to you based on the assessment in [Step 1](#). Article 20 [MRR](#) clarifies that you must include all relevant GHG emissions from all emission sources and source streams belonging to your [Annex I](#) activities. Under the broad definition of combustion it is particularly important that you have included all combustion sources.

Step 2.3: Select one or more monitoring approach(es)

The principles of monitoring are simple. The approaches are very similar to 'how you would want to do it'. Article 21 [MRR](#) allows you to choose between calculation-based or measurement (CEMS³)-based approaches (or a combination of both). More guidance on that is provided in section 4.3 [MRR GD1](#).

For example, the most common case for monitoring emissions from fossil fuel combustion, e.g. coal or natural gas, is the calculation-based approach:

$$\begin{array}{ccccccccc} \text{emissions} & = & \text{fuel} & \text{net calorific} & \text{emission} & \text{oxidation} \\ \text{t CO}_2 & & \text{quantity} & \text{value} & \text{factor} & \text{factor} \\ & & \text{t} & \text{GJ / t} & \text{t CO}_2 / \text{GJ} & \% \end{array}$$

Nevertheless, depending on your [Annex I](#) activity, there are activity specific approaches prescribed in Annex IV [MRR](#). Furthermore, you always can, but sometimes you must apply CEMS (N₂O emissions, carbon capture and storage). On CEMS, basic guidance can be found in chapter 8 [MRR GD1](#) and detailed guidance in [MRR GD7](#).

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:

- It not only covers GHG emissions from your sector, but from 28 different energy-intensive industrial activities as well as aviation (see [Annex I](#) Directive)
- It contains various provisions for simplifications to ensure cost-effectiveness, (e.g. [step 2.5](#))

³ Continuous Emission Measurement System

- It contains additional provisions to establish effective data quality control systems ([step 2.9](#)).

Step 2.4: Categorise installation, source streams and emission sources

Article 19(2) [MRR](#) sets out ranges for average annual emissions and, based on these values, requires you to classify your installation into 'category A, B or C'. Article 19(3) [MRR](#) requires you to do the same thing for all your source streams by categorising them into 'major, minor or de-minimis'.

Those categories will determine the 'ambition level', i.e. data quality, required for all parameters (e.g. fuel quantity, emission factor) relevant to a calculation-based approach. These ambition levels are called 'tiers' (see [step 2.5](#)). For measurement-based approaches, Article 41(1) [MRR](#) describes the analogous tier requirements for emission sources. You can find further guidance in section 4.2 [MRR GD1](#).



For very small category A installations with annual emissions <25 kt CO₂e, Article 47 [MRR](#) provides you with several exemptions and simplifications. You can find further guidance in sections 4.4.1 and 7.1 [MRR GD1](#).

Do I have to include emissions from biomass for categorisation?



No, categories only refer to fossil emissions: emissions from biomass are counted as zero. However, biomass use must still be monitored and Articles 38 and 39 [MRR](#) describe how biomass is treated; for biofuels and bioliquids sustainability criteria apply (see [MRR GD3](#)).

Step 2.5: The 'tier' system on data quality levels

What tiers are available?

For each [Annex I](#) activity and for each parameter (fuel quantity, emission factor,..), Annex II [MRR](#) lists all of the available tiers. The principles of this 'matrix' are described in section 4.5 [MRR GD1](#).

Are there special provisions for my sector?

Yes, Annex IV [MRR](#) describes some [Annex I](#) activity-specific derogations from those tiers.

Which tier do I have to comply with?

Article 26(1) [MRR](#): [Category B](#) and [Category C](#) installations in principle have to apply the highest tiers for all major and minor source streams. For category A, Annex V [MRR](#) shows for each parameter the minimum tier required. Article 26(2) and Article 26(3) deal with minor and de-minimis source streams.



Article 47(6) [MRR](#) allows installations with low emissions to always use tier 1 unless higher tiers are possible without additional effort, e.g. you comply with a higher tier anyway.

fuel quantity	net calorific value	emission factor	oxidation factor
Tier 1	Tier 1	Tier 1	Tier 1
Tier 2	Tier 2a/2b	Tier 2a/2b	Tier 2
Tier 3	Tier 3	Tier 3	Tier 3
Tier 4	Tier 3	Tier 3	Tier 3



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,..) what tiers there are and which ones you have to reach (e.g. tier 3).

In the next steps you will learn for [fuel quantities](#) and for [calculation factors](#) what is behind e.g. 'tier 3', 'tier 2a/2b', etc. and how you have to demonstrate compliance with these tiers.

Hint: When completing the Commission's [MP template](#) up to sheet E and F, the required tiers for each parameter will be displayed automatically.

Step 2.6: 'Tiers' for fuel or material quantity – Uncertainty

For fuel⁴ quantities, the tiers are based on uncertainties which you have to comply with (e.g. tier 4 = $\pm 1.5\%$). Guidance in section 4.7 [MRR GD1](#) provides you with an outline of this concept.

Article 12(1)(a) [MRR](#) requires you to carry out an uncertainty assessment and submit it to the CA as evidence of which tier you comply with, as a separate and supporting document to the MP. Detailed guidance is provided in sections 5.2, 5.3 and 6.1 [MRR GD1](#) and [MRR GD4](#).



If you are an operator of an installation with low emission, you are exempted from submitting the result of an uncertainty assessment to the CA (Article 47(3) [MRR](#)). However, you are still required to demonstrate to your verifier that you meet the tier threshold that is defined in your MP (Article 19 [AVR](#)). The Commission has also provided an [example uncertainty assessment](#).

What if I cannot achieve the required tier for activity data?

You either have to carry out corrective action (e.g. buy a measuring instrument of better quality) OR demonstrate that it is not technically feasible (for example, that there is not better quality instrument available to buy) or that buying the better quality instrument leads to unreasonable costs ([step 2.8](#)).

Step 2.7: 'Tiers' for calculation factors – Default values or Sampling & Analysis

For calculation factors listed in Article 3(7) [MRR](#) (e.g. emission factor,..), the tiers either require that you apply default values (lower tiers) or that you carry out sampling & analysis (highest tier). Where sampling & analysis is carried out, this has in general to be done in accordance with Articles 32 to 35 [MRR](#).

Detailed guidance on this is provided in sections 5.2, 6.2 and 6.3 [MRR GD1](#) and [MRR GD5](#). The Commission has also provided an [example sampling plan](#).

What if I cannot achieve the required tier for a calculation factor?

You either have to carry out corrective action (e.g. start analysing the fuels or materials involved) OR demonstrate [technical infeasibility or unreasonable costs](#).



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

Articles 38 and 39 [MRR](#) describe how you have to determine biomass fractions. Further guidance on biomass is provided in [MRR GD3](#).

Step 2.8: Technical feasibility and unreasonable costs

When you are not able to achieve the required tier for at least one parameter, you have to either carry out corrective action or demonstrate that it is not technically feasible (Article 17 [MRR](#)) or demonstrate unreasonable costs (Article 18 [MRR](#)). Article 26(1) [MRR](#) also allows for temporary exemptions.

More details can be found in section 4.6 [MRR GD1](#). You will encounter the terms technical feasibility and unreasonable costs on a number of occasions in the [MRR](#) and in all GDs. For the determination of unreasonable costs the Commission also has provided a [tool](#).

⁴ What is said on fuels here also applies to other materials such as process inputs and outputs to be monitored.

What if I cannot even achieve tier 1 for one or more parameter⁵?

If even achieving tier 1 is technically not feasible or would incur unreasonable costs, you may apply a fall-back approach as set out in Article 22 [MRR](#). Guidance for addressing such a situation is provided in section 4.3 [MRR GD1](#) and chapter 5 [MRR GD4](#).

Step 2.9: Data flow, risk assessment and control activities

Article 57 [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 58 [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 5.6 [MRR GD1](#) and [MRR GD6](#). The Commission has also provided a risk assessment [tool](#) and an [example risk assessment](#).



For installations with low emissions, Article 47(3) [MRR](#) exempts you from the requirement to submit the result of the risk assessment to the CA. Operators will still find it useful to carry out a risk assessment for their own purposes as well as 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. An overview of those procedures is found in section 5.5 [MRR GD1](#) and in the Commission's [MP template](#).

Step 2.10: Get approval of MP



Once you have completed all sub-steps under Step 2, you have to submit the MP to the CA and seek their approval as part of a valid GHG permit.

For approving MPs, the Commission has provided a [checklist](#) for CAs. You may however find it useful for you as well to check for completeness.

**20 days
after
permit**

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 Operator Holding Account within 20 working days of entry into force of the GHG permit (Article 16(1) [Registry Regulation](#)). You will find the links to your national administrator, including contact points and further information, on [DG CLIMA's registry website](#).

⁵ Note that this is not relevant for de-minimis source streams since for these you are allowed to apply estimation methods not based on tiers anyway.

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?

Sections 5.6 and 5.7 [MRR_GD1](#) provide 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 temporary changes to the monitoring methodology (Article 23 [MRR](#)) or data gaps (Article 65 [MRR](#)) might occur during the year. The Commission has published [guidance on data gaps](#) describing how to proceed in those cases.

What else is required throughout the year?

Implement the agreed procedures in your monitoring plan and comply with permit conditions in relation to Articles 59 to 64 [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: If you are eligible (i.e. in general if you are not exclusively producing electricity) you can receive free allowances every year (on 28 Feb). You can find further information on [DG CLIMA's free allocation website](#).
- 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 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: REPORTING ON ALLOCATION CHANGES

Each year by 31 December the latest, Article 24(1) of the [CIMS](#)⁶ requires you to submit to the CA information about changes to the installation's capacity, activity level and operation. You can find further information on [DG CLIMA's free allocation website](#), in particular in [Guidance Document 7](#).

⁶ Community-wide and fully-harmonised implementing measures. Benchmarking Decision 2011/278/EU

STEP 7: PREPARING AN ANNUAL EMISSIONS REPORT

Towards the end of the year (in fact before) you should already prepare to submit a *verified* AER by 31st March of the coming year. The preparation steps are:

Step 7.1: Engage an *accredited* verifier

Between January and March verifiers will be very busy, so make sure you already hire a verifier well before this period. You should also be aware that the verifier needs time already in the pre-contract stage to allocate budget and resources (see AVR [Explanatory Guidance Note 1](#) (EGD1) and the [quick guide on verification for operators](#) for further details).

How can I find an accredited verifier?

The European Co-operation for Accreditation (EA) is hosting 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 Member State. You can only contract a verifier whose scope of accreditation covers the activities of your installation. 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 7.2: Get the latest version of the AER template

The Commission has provided an [AER template](#) and [data exchange format](#) on their website. 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. Therefore, please consult your CA's website or contact your CA on which format to use before proceeding further.

Step 7.3: Complete the AER template

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.

Step 7.4: 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 your installation and monitoring methodology. More detailed data is required during actual verification (see section 3.2.2 [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 operators](#).

The verifier carries out verification applying the following steps: "strategic analysis" (to build-up understanding of the installation and the 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 re-

port returned to the operator). The verifier will usually have to carry out a site visit⁷. 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 19 [AVR](#)). In some cases this will require that you notify or gain approval from the CA (e.g. regarding necessary update 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 8: 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, you have to enter the verified emissions figure 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 9: 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 Member State where your installation is situated.



Deadline: The deadline for surrendering allowances for emissions occurring in calendar year N is 30 April N+1.

30 Jun
Year N+1

STEP 10: SUBMIT IMPROVEMENT REPORTS (IR)

There are two main situations under which Article 69 [MRR](#) requires that you submit to the CA an improvement report related to the monitoring methodologies applied:

- If you do not at least apply the required tiers for all major and minor source streams (Article 69(2) [MRR](#)) or you apply a fall-back approach (Article 69(3) [MRR](#)), you must submit the report to the CA by 30 June each year ([category C](#)), every two years ([category B](#)) or every four years ([category A](#));
- 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;

⁷ Under some specific conditions you can request the CA to waive the requirement of a site visit. For details see section 3.2.7 [EGDI](#) and [KGN II.5](#).



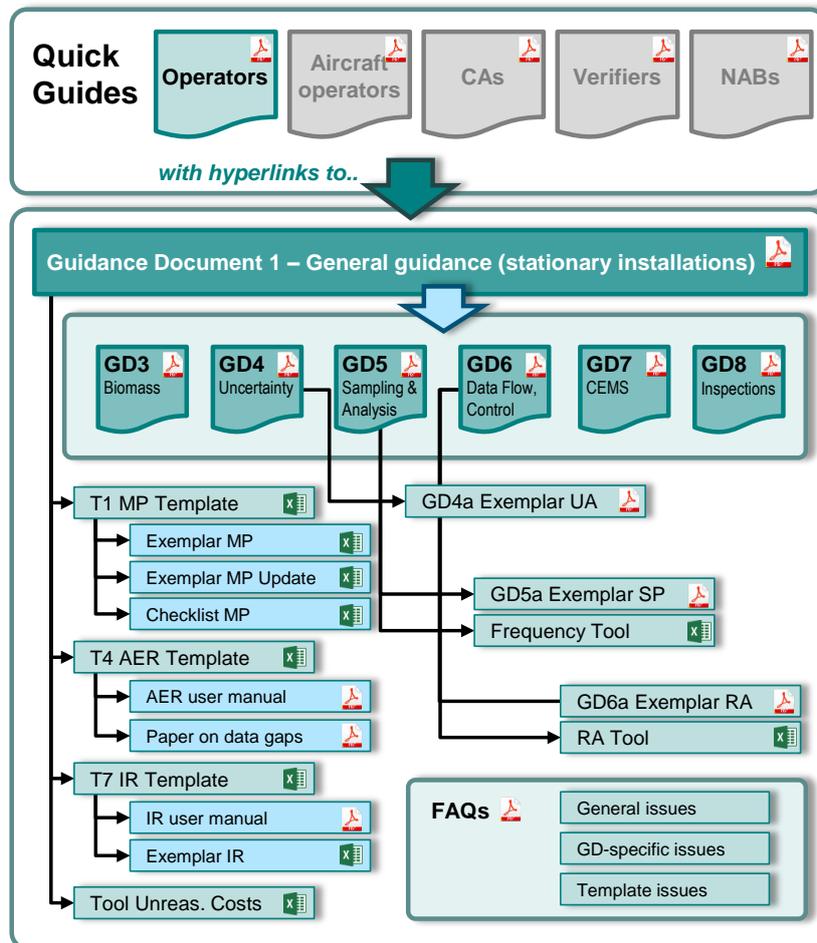
For installations with low emissions, Article 47(3) [MRR](#) exempts you from the requirement to submit a report on verifier recommendations for improvements. You only have to submit a report if the verifier states outstanding non-conformities. Further guidance on this can be found in question 1.10 of the [FAQs](#).

To this end, the Commission has provided an [IR template](#) and [data exchange format](#). You can also find further guidance in section 5.7 [MRR GD1](#).

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 operators of stationary installations. 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.



ABBREVIATIONS

EU ETS	EU Emission Trading Scheme
MRR	Monitoring and Reporting Regulation Regulation (EU) 601/2012
AVR	Accreditation and Verification Regulation Regulation (EU) 600/2012
MP	Monitoring Plan
GD	Guidance Document published on the Commission's website
AER	Annual Emissions Report
IR	Improvement Report
VR	Verification Report
UA	Uncertainty Assessment
SP	Sampling Plan
RA	Risk Assessment
CIMs	Community-wide and fully-harmonised implementing measures; Benchmarking Decision 2011/278/EU